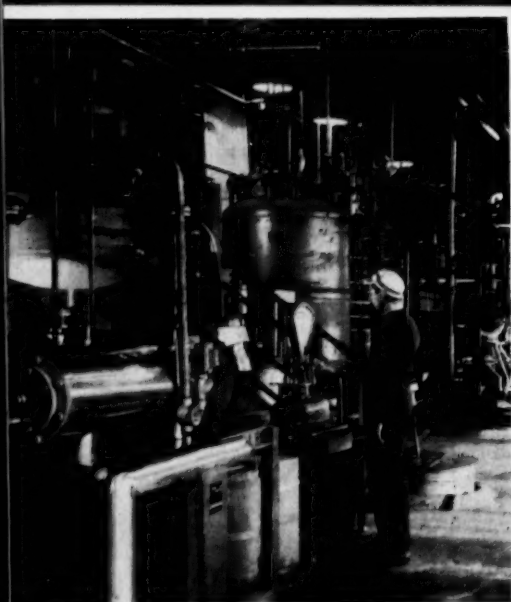


Chemical Week



Chemical plants edge closer to
neighbor's productivity,
unionization p. 24

Economic weather forecast on
drug industry: clearing, with
slowly rising barometer . . . p. 26

What to do in the awkward age—
between pilot unit and large
scale. Here's one answer . . . p. 48

Many languages, U. S. firms
offer other modes of inter-
national trade fairs p. 58

Chemical formulation
to the \$50-million/year
market p. 67



Mathieson Nitrate of Soda: *prilled to pour*

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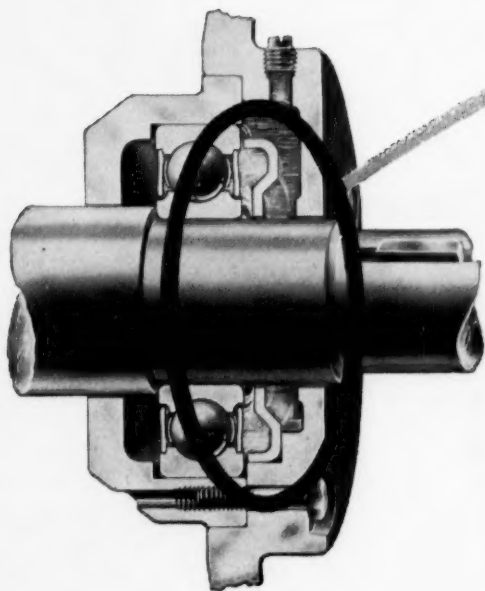


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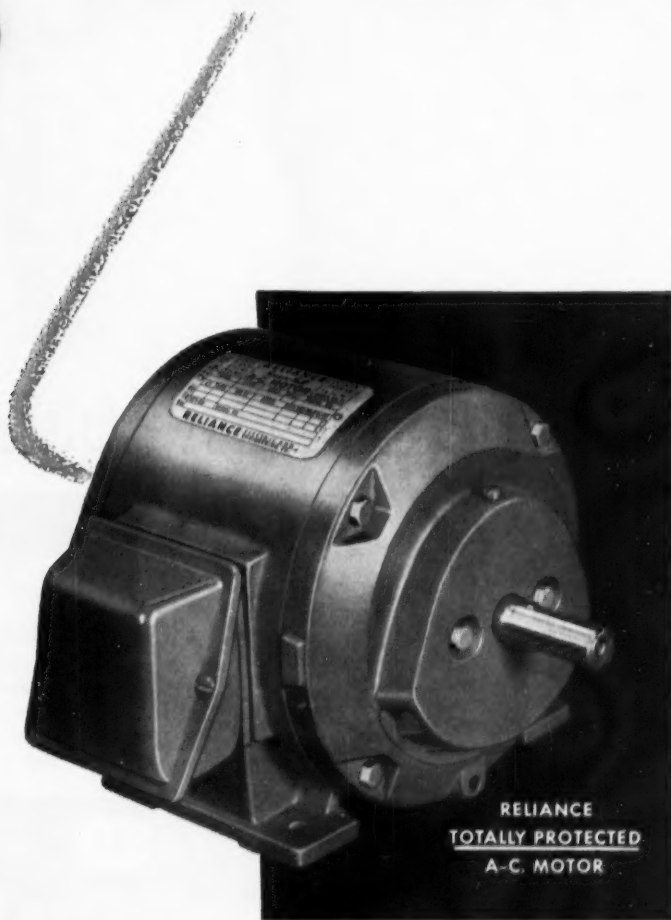
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Chemical Week

Volume 76

APRIL 9, 1955

Number 15

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6 OPINION

13 NEWSLETTER

17 BUSINESS & INDUSTRY

- Hearings on proposed Japanese, Swiss tariff reductions draw chemical industry representation
- 18 Shea Chemical plans four-plant expansion move
- 19 Brownell merger report out: recommends strict government surveillance
- 24 Productivity, wages, unionization rising in South's chemical plants
- 26 Outlook for pharmaceutical industry: slowly rising sales, few spectacular new items
- 32 Mitsui merger looms, portends competition for U.S. in world markets
- 38 Professional employees' union bows in Supreme Court case
- 42 Guaranteed wage issue joined; chemicals' turn later

46 PRODUCTION

Cyanamid builds unit to bridge gap between pilot and commercial size

58 DISTRIBUTION

- More chemical companies participate in trade fairs
- 62 Control engineering now streamlines warehouse

70 RESEARCH

- New soil stabilizer stops seepage, will vie for engineering jobs
- 74 There's little time left to apply for tax aid on new labs; here's the score to date

85 MARKETS

- Market letter
- 89 Carbon dioxide now ample; vigorous sales push looms
- 90 Barium citrate builds a latex paint market
- 92 Freeze squeeze ahead in tung oil

97 SPECIALTIES

- Lipsticks that last—trend in the \$50-million lip cosmetic field
- 98 Wax maker bids for the gasoline additive market

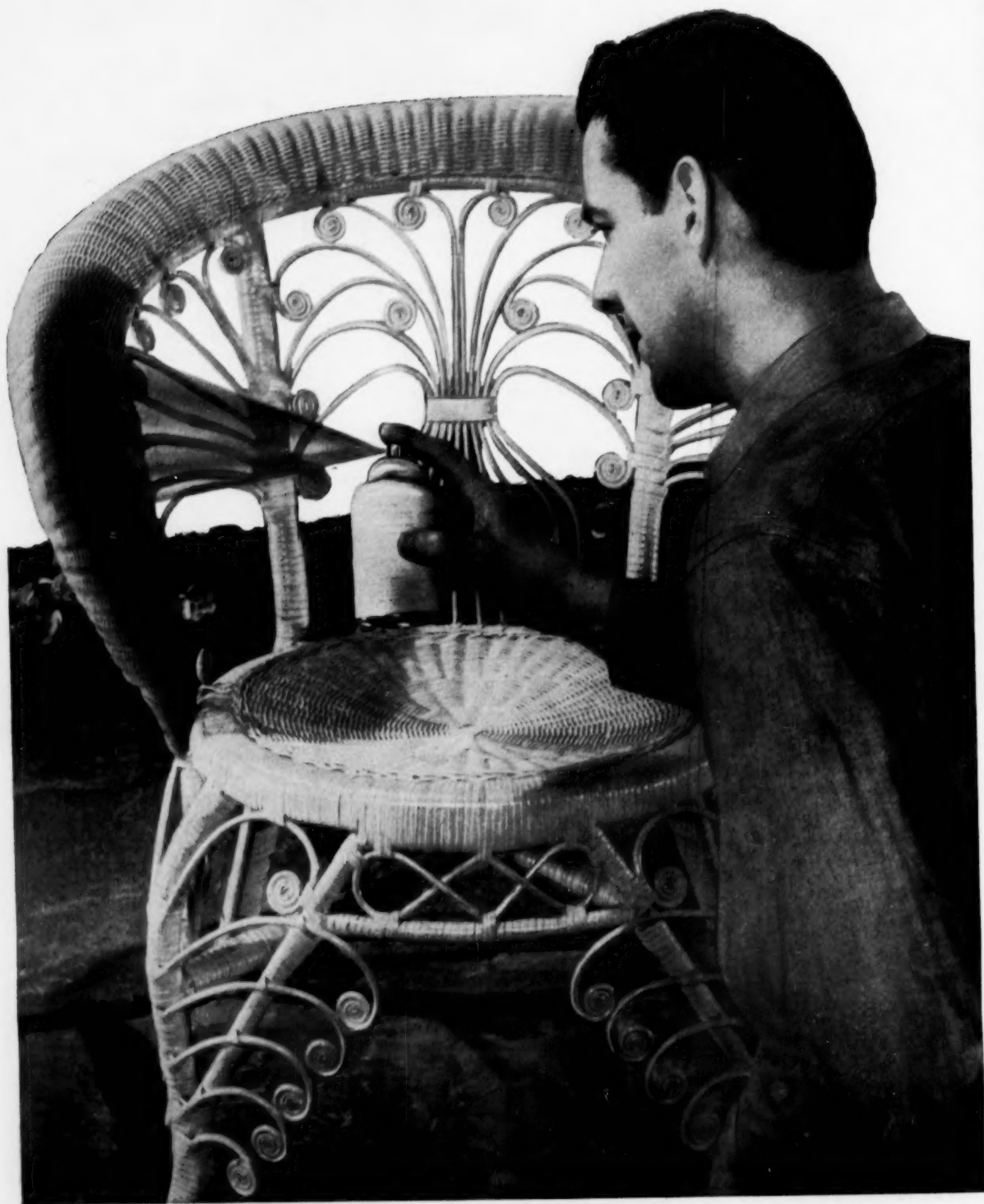


Chemical Week (including Chemical Specialties and Chemical Industries) is published by McGraw-Hill Publishing Company, Inc. James H. McGraw (1860-1948), founder, Executive, Editorial and Advertising Offices: McGraw-Hill Building, 230 W. 42nd St., New York 36, N. Y. Publication Office: 1209 Noble St., Philadelphia 23, Pa. Donald C. McGraw, President; Paul Montgomery, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooks, Secretary; Nelson Bond, Executive Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Director of Advertising; J. E. Blackburn, Jr., Vice-President and Circulation Director.

Subscriptions to Chemical Week are solicited from management men in the chemical process industries. Position and company connection must be indicated on subscription order. Address all subscription communications to Chemical Week Subscription Service, 230 W. 42nd St., New York 36, N. Y., or 1209 Noble St., Philadelphia 23, Pa. Allow one month for change of address.

Single copies 25¢ except Annual Buyer's Guide issue, priced at \$2.50. Subscription rates—United States and Possessions \$5.00 a year; \$9.00 for two years; \$10.00 for three years. Canada \$6.00 for a year; \$10.00 for two years; \$12.00 for three years. Other Western Hemisphere Countries \$15.00 a year; \$25.00 for two years; \$30.00 for three years. All other countries \$25.00 a year; \$40.00 for two years; \$50.00 for three years. Entered as second class matter December 29, 1951, at the Post Office at Philadelphia 23, Pa., under the act of March 3, 1879. Printed in U.S.A. Copyright 1955 by McGraw-Hill Publishing Co. Inc.—All rights reserved.

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Realistic Approach

TO THE EDITOR: At various times during the past year or so, you have made editorial comments pertaining to the hearings the U.S. Food & Drug Administration has held pertaining to the possible decertification of certain of the coal-tar colors.

You have noticed that, quite obviously, FDA's definition of the word "harmless" is zero toxicity, and, of course, there isn't in reality anything, including salt and water, that meets that requirement.

The Canadian food laws have adopted the U.S. list of certifiable colors in its entirety, but they have gone one step farther in placing a tolerance on the maximum permissible amount of dye that might be in foods. This maximum is 286 parts per million, based upon the final food product as prepared for consumption.

This is certainly a very realistic approach, and it is extremely surprising that comparable steps have not been taken in this country . . .

R. D. GERWE
Research Director
Food Machinery & Chemical Corp.
Florida Division
Lakeland, Fla.

Differing Sources

TO THE EDITOR: I enjoyed reading the news article on rare earths (March 5) very much and in general agree with its conclusions.

However, I do not believe that rare earths from monazite, bastnasite and the other sources are entirely competitive. In general, bastnasite contains very few rare earths other than cerium and lanthanum with a small amount of neodymium. The monazites contain a higher percentage of the rare earths between cerium and gadolinium. Gadolinium has more heavy rare earths than either of the other two. Therefore, if one wants to separate rare earths, bastnasite would be practically useless for rare earths above samarium. Monazite would be a good source of samarium and gadolinium, but a poor source for heavy rare earths.

If the crude R_2O_3 is to be used in the iron and steel industry, the crudes from these various ores might behave

differently since the rare earth distribution would be different, and the presence of these heavier rare earths in some of the crudes may affect their usefulness either advantageously or disadvantageously, depending on the properties under consideration . . .

F. H. SPEDDING
Director
Ames Laboratory
U.S. Atomic Energy Commission
Ames, Iowa.

Earths for Steel

TO THE EDITOR: I think the article "No Scarcity of Rare Earths" (March 5) is very good and covers the subject well . . .

There have been a large number of metallurgical studies made in the past months on the use of the yttrium group of rare earths and also on the use of thorium in alloy materials. Comprehensive articles on these subjects would also be of great interest to many readers . . .

E. J. CARLSON
Mining Engineer
Rare Metals Corp. of America
El Paso, Tex.

Sales Manager Speaks

TO THE EDITOR: I congratulate you on your news article, "Matter of Pride; Sales Managers Speak," (Feb. 19, p. 70) . . . I intend to send copies to presidents of various universities . . .

A. G. TAPPIN
Central-Southern Sales Manager
Westvaco Mineral Products
Cincinnati

Superduper

TO THE EDITOR: In your report on Utah's chemical industries (March 12) it is stated that Bonneville Ltd. turns out 75% potash.

Two or three years ago I calculated the estimated production of potash, K_2O , for Dept. of Agriculture, the highest grade being 60% muriate.

The 75% potash mentioned in the article must be some superduper grade that I haven't heard about as the theoretical used to be about 63%.

WILLARD C. COPE
Greensburg, Pa.

We erred—75% is not a meaningful figure. Bonneville Ltd. ships 70-75,-

000 tons a year of 95% potassium chloride or "60% plus" potassium oxide.—Ed.

Better Toys

TO THE EDITOR: I have just read your news article on plastic toys—"Quality's the Battle Cry" (March 26).

There is no question that the quality of plastic toys now being produced has greatly improved and we expect this improvement will continue, due to the research and promotional efforts of many leading plastic concerns . . .

H. D. CLARK
Secretary
Toy Manufacturers of
the U.S.A., Inc.
New York City

To Thwart Raids

TO THE EDITOR: In his letter to you (March 19) Mr. Lewis Carter raises a very timely point when he says that chemical companies had better be alert . . . to who is buying their stock if they want to stave off the threat of being taken over by financial raiders. For, although I agree that our industry has not yet been assaulted by these financial buccaneers—who just want to get into a good solid company and make a fast profit—there is no guarantee that they won't . . .

The manufacture of chemicals is a business that is glamorous—and the manufacture of petrochemicals is even more attractive from the layman's standpoint—so chemicals are a likely target . . .

As you may know, the machine tool makers have been having a lot of trouble with this sort of thing and Congressman Dodd has urged that Congress make a full investigation of the rising wave of business raids . . .

In my opinion, you should report on his proposal . . . It could help to

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N. Y.

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OPINION

focus attention on a now-existing problem and one that threatens to become more acute . . .

H. J. CRUSE
Washington, D.C.

Representative Dodd (D., Conn.) introduced a resolution calling for an investigation and a bill to establish a commission on ethical financial practices. He would authorize the House Banking Committee to probe "raiding" of business establishments by persons who seek to acquire control by "predatory financial operations for the purpose of promoting unfair or reasonably speculative financial actions." The resolution would give the investigators subpoena power.

Several lines of investigation were suggested by Representative Dodd: a check into the character and history of the principals involved; a determination of the source of funds; whether the companies are involved in defense work; a check into the banks or financial institutions supplying loans for such stock purchases; an inquiry into what the SEC or New York Stock Exchange is doing—or not doing—in such matters; the setting up of standards to "segregate constructive and fair capitalism from pure buccaneering."—Ed.

Paired Aces

TO THE EDITOR: . . . Congratulations on the splendid article on Utah, "Ace in the Hole for Next Century's Growth" (March 12, p. 18) . . . All of us in the 11 Western states can be justly proud of the reporting you have done on the future of Utah. . . . You told us many things about our neighbor to the north that we in Arizona did not know . . .

Realizing the importance of articles such as these in keeping your readers informed of the chemical industry's potential in the rapidly expanding West . . . we are enclosing a report that we recently completed for the Arizona Development Board. While it is designed primarily to stimulate local interest . . . it may be of interest to others as well. Copies may be obtained from the Arizona Development Board—a newly established state office in the Capitol Annex, Phoenix . . .

Arizona also is an ace in the hole for the next century's growth . . . and we're growing faster than any of our 47

neighbors. You could well have these aces paired . . .

GEORGE G. OLSON
Research Director
Arizona Research Consultants, Inc.
Phoenix

DATES AHEAD . . .

The American Oil Chemists' Society annual meeting, Roosevelt Hotel, New Orleans, April 18-20.

The American Society of Mechanical Engineers, spring meeting, Lord Baltimore Hotel, Baltimore, Md., April 18-21.

American Zinc Institute, annual meeting, Drake Hotel, Chicago, April 23-29.

Scientific Apparatus Makers Assn., annual meeting, The Greenbrier, White Sulphur Springs, W.Va., April 24-28.

Chlorine Institute, spring meeting and golf tournament, Seaview Country Club, Absecon, N.J., April 26-27.

National Metal Trades Assn., Western Plant Management Conference, French Lick Springs Hotel, French Lick, Ind., May 1-4.

American Institute of Chemical Engineers, national meeting, Shramrock Hotel, Houston, May 1-4.

Electrochemical Society, Sheraton-Gibson Hotel, Cincinnati, May 1-5.

American Pharmaceutical Assn., annual convention, Miami Beach, Fla., May 1-6.

Society of the Plastics Industry, annual meeting and conference, cruise on the Queen of Bermuda, May 7-15.

American Institute of Chemists, annual meeting, Chicago, May 11-13.

Automation Symposium, Michigan State College, East Lansing, May 12-13.

Chemical Specialties Manufacturers Assn., midyear meeting, Drake Hotel, Chicago, May 15-17.

Chemical Progress Week, May 16-21.

Chemical Market Research Assn., annual meeting, Plaza Hotel, New York, May 18-19.

Rubber Division, Chemical Institute of Canada, annual conference, Sheraton Brock Hotel, Niagara Falls, Ont., May 20.

Air Pollution Control Assn., annual meeting, Detroit, May 22-26.

Institute of Paper Chemistry, executives' conference, Appleton, Wis., May 26-27.

Chemical Institute of Canada, annual conference, Quebec City, May 30-June 1.

Armed Forces Chemical Assn., annual meeting, Cleveland Hotel, Cleveland, June 16-17.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-July 1.



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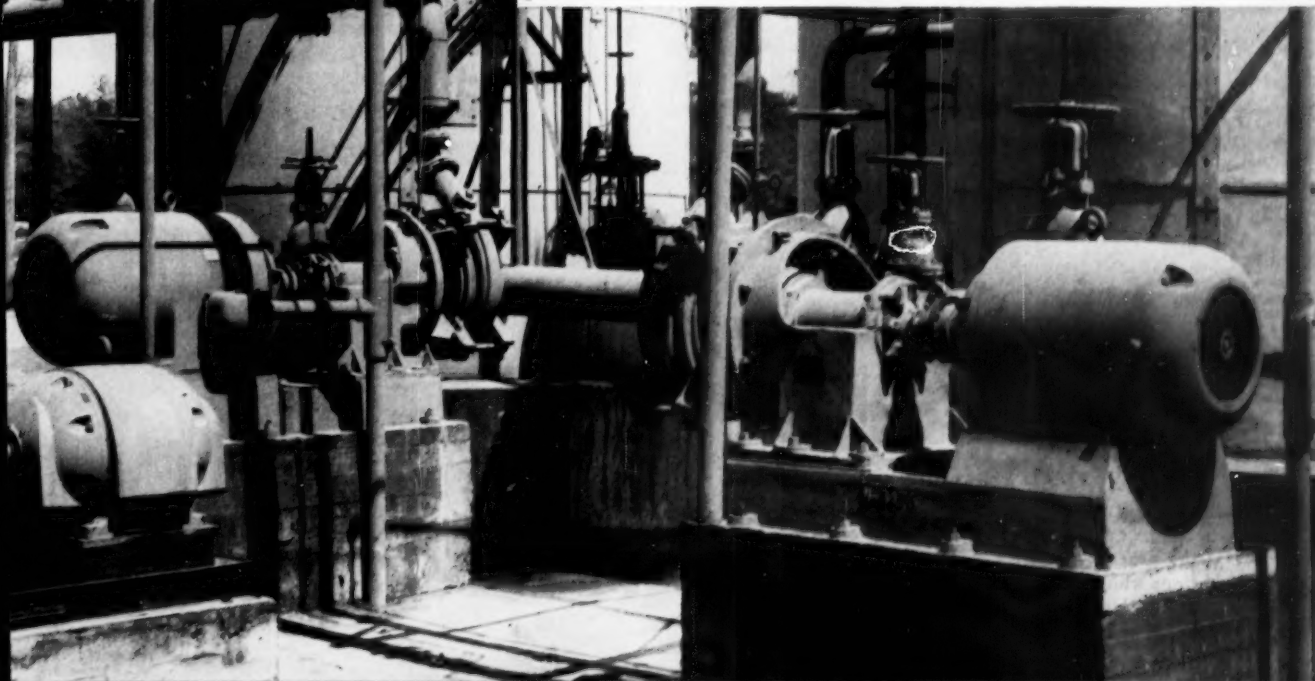
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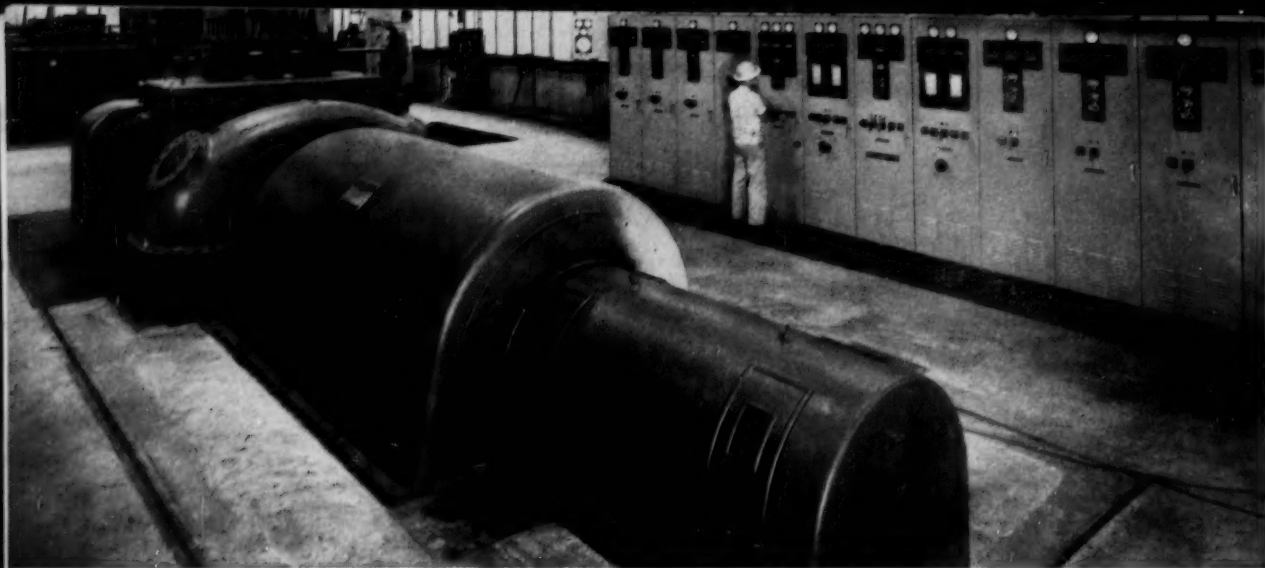
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681-4

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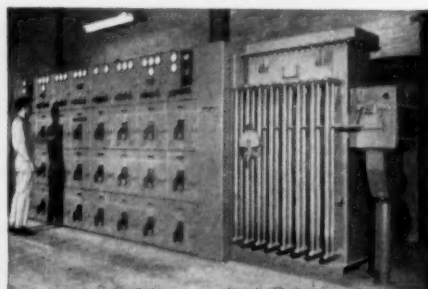




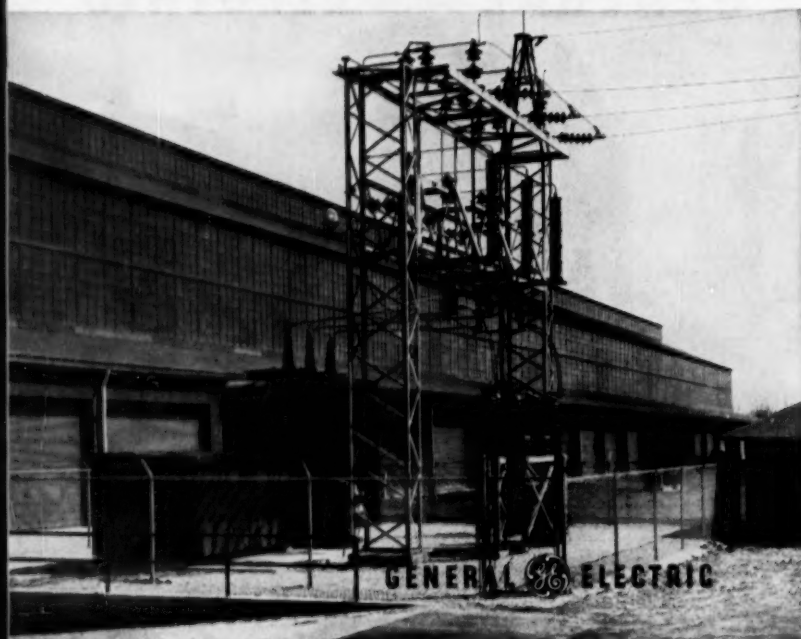
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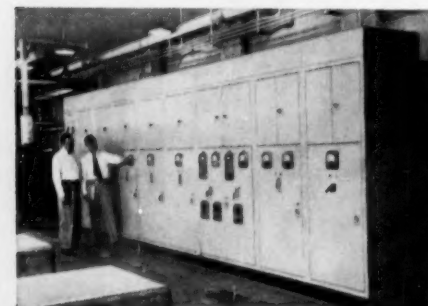
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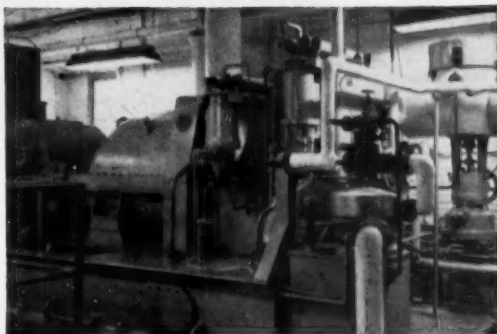
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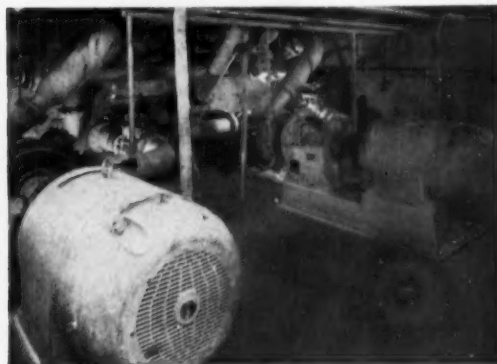
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NEWSLETTER

The fight in Congress over the President's trade liberalization program reaches a crucial stage this week, and chemical company representatives are well in the forefront of the action (*see p. 17*). At last count, the Senate Finance Committee was split just about evenly for and against the restrictive amendments to H.R. 1, with two or three members still hanging on the fence. Outlook: a different line-up vote on each amendment, the probability of drastic restrictions unless Eisenhower cracks the political whip on individual senators.

Protectionists' lobbies — particularly textile interests — have waged their most aggressive campaign in years to cripple the bill. Defeat or mutilation would have far-reaching effects—would lessen the Administration's already doubtful chances of getting the rest of its foreign trade program (GATT and customs simplification) through Congress.

Action was picking up on the merger front, too—with immediate repercussions in store for chemical firms. Federal Trade Commissioner Edward F. Howrey's special 12-man task force (set up to investigate the most significant recent and current mergers) will "get going" in those industries where merger activity has been particularly strong. Given top priority: chemical industry amalgamations.

Opposition seems to be building up to Eisenhower's recommendation concerning return of seized alien property—a proposal that would set a \$10,000 limit on return claims. Four congressmen have introduced legislation that would give former owners of seized alien property an amount equivalent in value. This could spell serious trouble to firms such as General Aniline & Film Corp. and Schering Corp.—which had been cheered by the President's proposal to preclude such holding from direct-value return.

Congressional chemicals-in-foods hearings probably won't get under way until the end of May, at the very earliest. The House Interstate and Foreign Commerce Committee, which has the chemical probe on its agenda, must first dispose of the controversial Harris natural gas regulation bill.

Public hearings on the latter are not slated to conclude until early May—and, even then, the bill faces a possible committee filibuster led by members Charles Wolverton (R., N.J.) and John Heselton (R., Mass.).

You'll have to file a new application with Office of Defense Mobilization, if you hope to take advantage of the six-month extension for requesting rapid tax write-offs on new methanol and glycerine capacity (*CW Newsletter, March 12*).

Firms previously turned down for certificates of necessity on these commodities will be first in line for unused certificates. ODM, however, won't automatically consider previously denied requests; new applications must be filed.

Research and development certificates (*see p. 74*) continue to be granted. Latest successful applicant: Monsanto Chemical Co.'s Plastics Division (Texas City, Tex.) \$476,274 at 40%.

General Electric's Irrathene 201 irradiated polyethylene film moved a step closer to commercialization last week when GE disclosed that the product was available in quantity at 65¢/sq.yd. (5 mil thickness) and \$1.30/sq.yd. (10 mil)—prices calculated to encourage evaluation.

Like its predecessor, Irrathene 101 (*CW*, April 3, '54, p. 69), the new film is primarily intended for electrical insulation; unlike the latter, however, it reportedly is suitable for applications in the 100 C-plus temperature range. GE gets around the high-temperature-oxidation problem by incorporating into the plastic an oxidation inhibitor said to permit continuous use of the film at 125 C.

•

If the laboratory results of Iowa State College's Paul Dahm are borne out in the field, farmers may soon be rotating insecticides the same as they rotate crops. A research entomologist, Dahm reports that some of his DDT-resistant flies lost their protection in about eight months after not being exposed to the insecticide during that period.

He emphasizes that this type of reversibility has not yet been observed in nature. But it's possible, he believes, that growing use of newer chemicals (organic phosphates) may even now be stripping flies of their DDT armor.

•

Greatest potential for any single drug product this year will open next week if there's a favorable report on the Salk polio vaccine. If such a report comes out next Tuesday, the Food & Drug Administration has promised to act as rapidly as possible to clear the vaccine for use before the start of the summer "polio" season.

And the six companies that have been producing the vaccine in expectation of full clearance for the product are poised to start making deliveries on short notice. One of them—Eli Lilly & Co.—says it has vaccine ready this week, and will begin shipping directly to doctors and hospitals; druggists and wholesalers won't be supplied until FDA has announced its approval. Others who've invested in Salk vaccine production on the chance that it would prove successful: Pitman-Moore, Indianapolis (ready by April 12, with no restriction on quantities ordered); Parke, Davis & Co., Detroit (stock now on hand is limited, amount unknown); Cutter Laboratories, Berkeley, Calif., (about 11,000 sq. ft. of floor space being used for Salk vaccine storage); Wyeth, Philadelphia (each salesman has been allocated 200 units of the vaccine); and Sharp & Dohme, Philadelphia (whose entire output is committed to the National Foundation for Infantile Paralysis).

The foundation says it has contracted to buy 25 million cc. of the vaccine from these six companies during 1955. That amount is expected to cover vaccination of some 9 million children.

•

Californians—always successful in attracting tourists—are perturbed about losing their appeal for industry in general and for a cellophane plant in particular.

Golden State boosters are worried that industry may misinterpret the decision by Olin Mathieson's Ecusta Paper Co. to postpone construction of a cellophane plant at Red Bluff; even though the company specifically stated that it wasn't deterred by proposed requirements for water pollution control, California (a) wants a cellophane plant, and (b) doesn't want industry to feel that state pollution officials are unfriendly or unreasonable.

SODIUM metallic

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reducing!**



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Top physical properties of the refractory metals demand the finest sodium. Numerous chemical reactions may benefit greatly from the use of this high purity sodium.

The Ethyl Research Laboratories have developed improved techniques for the analysis of sodium for oxides and other impurities. We would be happy to supply high purity sodium for your work and to give technical service on sodium analysis where desired.



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revitalize them with—

PERMA GREEN IRON 135

**for BIGGER, BETTER
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CROPS**



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Four ounces to
one pound
PERMA GREEN
IRON 135
per tree
produces dark
green leaves
and more,
larger and
better colored
oranges.



TREATED

Orange Tree
Photos Courtesy
National
Fertilizer Review

When iron is lacking and plant leaves turn yellow, PERMA GREEN IRON 135 makes them dark green in two weeks' time.

PERMA GREEN IRON 135 is an organic chelate that moves upward with the sap to rejuvenate the entire plant.

PERMA GREEN IRON 135 now produces —

- more and juicier oranges and grapefruit
- more and larger nuts
- more nutritious vegetables
- larger and more beautiful roses
- deeper-green leaves on azaleas and rhododendrons
- more attractive ornamental trees and shrubs.

Write for detailed information on PERMA GREEN IRON 135 for plants and reprint of scientific article on CHELATES.

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SUNFLOWERS

Grown in
nutrient
solution.
Small yellow
plant at left
treated with
iron sulphate.
Large dark
green plant
at right
treated with
PERMA GREEN
IRON 135.



GARDENIAS (Greenhouse)

Iron is very
important
for gardenias.
Treat each bush
with 1/8 to 1/2
level tablespoonful
PERMA GREEN
IRON 135
to insure dark
green leaves
and large pure
white flowers.

BUSINESS & INDUSTRY



WHITE, KITHIL, MOODY: Their testimony at last week's hearings points up . . .

Tariff Issues at Stake

The President's foreign trade program was in deep trouble on Capitol Hill this week as the Senate Finance Committee began closed-door sessions on the trade agreements bill. The outcome's in doubt.

Downtown at Tariff Commission headquarters, testimony from a score of chemical companies against proposed tariff reductions—on coal-tar dyes and intermediates, phenol, industrial alcohols, and carbon tetrachloride—pointed out clearly once more why there is such powerful resistance to the freer-trade program in Congress.

Company after company warned that further tariff cuts on these chemical products in connection with the current multilateral Japanese negotiations and the upcoming negotiations with the Swiss (designed to compensate them for the boost in U.S. watch tariffs) would threaten the very existence of an important segment of the chemical industry. Here are some representative quotes from testimony presented to the Tariff Commission and the Committee for Reciprocity Information:

- Richard Kithil, vice-president of Carwin Co.: "Our market dwindles bit by bit and product by product as we find we are unable to compete. After Torquay (1951 tariff conference), we were forced to abandon making meta-aminophenol. The tariff rates adopted at Torquay have permitted importation of meta-aminophenol, dianisidine, benzidine, naphthol ASC, and dichlorobenzidine in amounts that grow with time, at landed duty-paid prices we understand are less than ours—in the case of dianisidine 12¢/lb. less than ours. Furthermore, the entire list of coal-tar intermediates is subject to the same circumstances, which effectively prevents our sound diversification into such other products.

"We have one nearly idle major manufacturing building out of our two manufacturing areas in which we formerly made meta-aminophenol, and accordingly a lesser labor force."

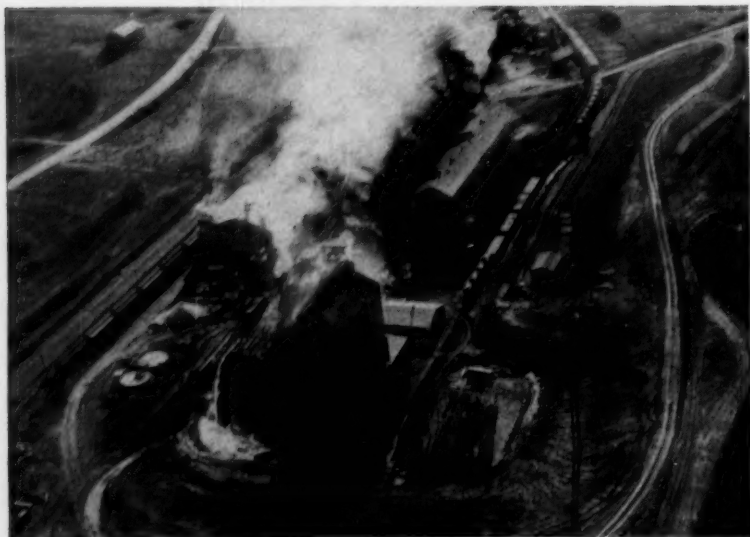
- C. H. Love, asst. secretary, C. K. Williams Co.: "The German oxide industry has a potential capacity of 45,268 tons, greater than that required by the German economy and greater

than that in the highest year of U.S.A. production. It represents a threat to the continued maintenance of production from plants built for defense."

- Robert Grant, vice-president, Young Aniline Works Inc.: "Present duties are barely adequate to prevent major inroads on our domestic business. Any further substantial reduction of our production must result in the eventual closing of our plant."

- Albert Bandelius, vice-president, Pfister Chemical Works Inc.: "In 1951, 15 companies were engaged in [naphthols] manufacture. Today we are aware that one-third of such companies have abandoned the manufacture of naphthols, leaving only 10 to face the uncertain future." Bandelius went on to envisage the extinction of the naphthol industry through foreign competition, and concluded:

"When our country is then completely dependent upon foreign sources of supply for naphthols, it is obvious what the next move will be. The foreign chemical manufacturers will raise world prices for raw materials to the point where the entire American dyestuff and pigment manufacturing industry will not be able to survive economically. The suicidal cycle will have been completed."



COLUMBIA FURNACE: Pattern for 20,000-ton elemental phosphorus producer that is . . .

Doubling Capacity Again

Shea Chemical Corp., Baltimore's bouncing baby of the phosphorus-sodium phosphate industry, is on the move again.

This week's expansion plans include construction of a second elemental phosphorus furnace and a phosphate rock-washing plant at Columbia, Tenn.; construction of a sodium phosphate and phosphoric acid plant in Dallas, Tex.; and enlargement of present phosphoric acid and dicalcium

phosphate facilities at Adams, Mass., to permit production of various specialty organic chemicals.

Cost of the entire program: \$5 million; completion date: late 1956.

As in the case of Shea's other expansion maneuvers (*CW*, April 3, '54, p. 18), design will be handled by the company's own engineering staff.

"Key to the four-step expansion program," company President Vincent Shea points out, "is construction of the phosphorus furnace." The additional 40 million lbs. of phosphorus it will produce enables Shea to expand its present facilities and build the new sodium phosphate plant in Dallas.

Combined output of the two furnaces: 40,000 tons of elemental phosphorus annually. Energy for the electric furnace operation will be supplied by purchase of an additional 33,000 kwh. from TVA.

Aimed Toward Independence: Basic reason for construction of the rock-washing plant at Columbia, explains John Lux, Shea vice-president in charge of research and industrial sales, is to permit Shea to maintain relatively independent operation beginning with phosphate rock mining and ending with production of finished chemicals.

Choice of Dallas as site of the proposed phosphoric acid plant (cost: \$1.2 million) was conditioned by Shea's potential markets in the region.

Phosphorus will be supplied from the Tennessee location by tank car; long-term contracts have already been lined up with local detergent producers (chiefly Procter & Gamble); capacity: 80,000 tons/year of phosphoric acid.

As in Jeffersonville, Ind. (where Shea put a phosphoric acid plant into operation last fall), the Texas unit will use, in sodium phosphate production, a spray-dry process.

Eyes on Massachusetts: Despite the ambitious scope of its other expansion plans, the eyes of Shea executives will be on developments at Adams, Mass. Immediately, the firm will enlarge its present phosphoric acid facilities—as a preliminary step necessary to pilot-planting a number of new organic specialty items. Organic and specialty research activities will be moved to Adams. But company spokesmen predict that before year's end they'll be in a position to move again—this time in a direction away from the fertilizer industry, closer to the detergent picture.

Soap Strike Settled

"Parallel bargaining" appears to have passed its first test in the chemical process industries.

The informal coalition of one AFL union, one CIO union, and one independent union held together through a 2½-week strike at three plants of Colgate-Palmolive Co., and its members are now expected to ratify a compromise 8½¢/hour wage increase offered by management.

Back in full production are Colgate plants at Jersey City, N.J., Jeffersonville, Ind., and Kansas City, Kans. Bargaining agents at those plants: Employees Assn. of Colgate-Palmolive (Ind.); Local 15, International Chemical Workers Union (AFL); and Local 5-114, Oil, Chemical & Atomic Workers (CIO).

Meanwhile, negotiations are continuing this week for a new labor contract at Colgate's West Coast plant in Berkeley, Calif., whose employees are represented by the International Longshoremen's & Warehousemen's Union. The old Berkeley contract expired March 31, but officials on both sides have indicated that they expect to work out a new pact without a strike. So far, the three-union coalition at Colgate's Eastern and Midwestern plants has not been working with the ILWU Berkeley local.



SHEA: Promises new plants' completion by late 1956.



ATTORNEY GENERAL BROWNELL: One factor in the . . .

3 Threats to Mergers

In three swift moves last week, the antitrust pot—already bubbling—was pushed closer to the fire. And chemical companies—well aware that their industry has a big stake in the outcome—wondered who would be next on the coals.

Here's how developments were going:

- Attorney General Brownell's national committee to study the antitrust laws submitted its final report—an elaborate 394-page book.

- Antitrust chief Stanley N. Barnes filed his second antimerger case, which charges that General Shoe Corp. violated the 1950 antimerger law in acquiring 18 competing shoe makers or sellers in the past five years.

- At the same time, the Senate Small Business Committee summed up its 1954 activities with the charge that the threat of monopoly is reaching "more menacing proportions" and that small businesses are being caught by the merger trend caused by the "crushing competitive pressures exerted by the . . . giant companies . . ."

The new antimerger case and the Senate Small Business Report point up the current climate in Washington in which the Antitrust Committee report is being studied.

Basic fact about the report is that, as a highly technical analysis by some 60 experts in the field, it heralds no drastic change in antitrust law or enforcement (CW, March 12, p. 14). As Antitrust chief Barnes puts it, "no

one who takes a position far to the left or far to the right (on antitrust) will be completely satisfied with the report."

Certain committee members themselves sharply dissented, charging the recommendations do not go far enough in providing answers to ways in which the antitrust laws need modernizing and strengthening. These dissenters certainly will find willing ears on Capitol Hill.

Congressional committees are sure to take up the report—if not directly, at least indirectly—in the many investigations planned that relate to monopoly and antitrust matters. And Sen. John J. Sparkman (D., Ala.) promised before the report was officially released that his Senate Small Business Committee would scrutinize it.

Strong Stand: The Antitrust Committee itself takes a strong stand in favor of the tough 1950 antimerger law and the way the Justice Dept. and the Federal Trade Commission have been enforcing it. That's one reason why Barnes, who served as cochairman of the committee with Michigan University law professor S. Chesterfield Oppenheim, feels the net effect of the report is a general strengthening of antitrust.

Apart from an analysis and attempted reconciliation of conflicting doctrines in antitrust law and court decisions, the report contains some 60 recommendations on administrative enforcement and 10 recommendations for legislative changes.

Included:

- To repeal the Miller-Tydings



Battery Feud, Second Phase

DON'T EXPECT a decision before summer in the Federal Trade Commission's case against the makers of battery additive AD-X2. The hearing started last autumn, and up until last month the FTC was presenting its argument that AD-X2 maker Jess Ritchie should be ordered to tone down his advertising claims ("extends life of mechanically sound sulfated batteries"). Now it's Ritchie's turn at bat in another series of short stands across the country—first Boston, then New

York, this week in Washington, then on to the Midwest and California. Now admitted into evidence: reports on testing by MIT's chemistry department and by U.S. Testing Co., both of which have been interpreted as favorable to AD-X2. Shown above: A. S. Mindes of U.S. Testing; Ritchie of Pioneers, Inc.; and Pioneers attorney Kahl Spriggs. Attending last week's sessions were observers from the House Committee on Government Operations.

and McGuire Acts, the so-called federal "fair trade" laws;

- to raise the criminal fine for violation of the Sherman Act from \$5,000 to \$10,000 (Brownell has already asked an increased fine of \$50,000);

- to give federal judges discretion to award less than treble damages (now mandatory) in private antitrust suits;

- to give the Attorney General a new kind of subpoena power—a "civil investigative demand"—to require production of documents to aid antitrust investigations;

- to permit the government to sue for actual damages suffered because of antitrust violations (Brownell already has asked for this);

- to put a four-year statute of limitations on private antitrust suits.

COMPANIES. . . .

Camp Chemical Co., Inc. (Brooklyn, N.Y.) has acquired the patents, products and trademarks of Scour-Nu, Inc.—manufacturer of chemical specialties. The three products formerly manufactured by Scour-Nu will now be manufactured and distributed by the Scour-Nu Division, Camp Chemical.

Ideal Cement Co. will start exploration this month for uranium in a 150-200-mile radius of Laramie, Wyo. The program is a direct result of the government's recent sale to Ideal of its alumina plant built at Laramie during World War II.

Ideal plans to convert part of its recently acquired plant to milling of uranium.

Baytown Rubber & Chemical Co. has filed a charter of incorporation in Dover, Del. Authorized capital stock: \$120,000.

Net income of Hooker Electrochemical Co. for the three-month period ending Feb. 28, '55, totaled \$1.1 million—an increase of 25% over the comparable quarter in 1954. Net sales in the latest quarter: \$12.4 million—23% over last year's \$10 million.

Pabco Products, Inc. (San Francisco), has purchased a gypsum deposit near Lovelock, Nev., from Ideal Cement Co. (Denver).

EXPANSION

Chlorates: Oldbury Electro-Chemical (Niagara Falls) plans to expand sodium chlorate facilities at Columbus, Miss. Construction will begin next month.

Saccharate: Sanders Chemical Co. (Philadelphia) has completed a plant addition that will be used solely for the manufacture—in commercial quantities—of potassium acid saccharate and derivatives.

Sulfuric Acid: Rico Argentine Mining Co. has started construction of a \$1.5-million plant at Rico, Colo., to produce 150 tons/day of sulfuric acid. The acid will supply uranium mills within a 100-mile radius of Rico. The acid plant was designed by Monsanto Chemical Co., is being built by Leonard Construction Co., Chicago.

Rico Argentine has been producing iron pyrites in the area since 1938. Pyrites from present mill tailings will be upgraded and used in the initial acid-making operation.

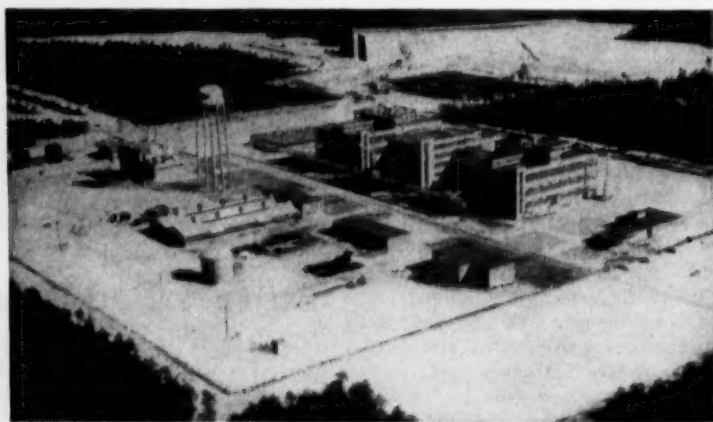
Glass: The Northwestern Glass Co. (Seattle) has ordered construction of

a new batch plant estimated to cost \$300,000. The plant will be integrated with the rest of Northwestern's glass-container operation so that the handling of raw materials and the mixing and distributing of the glass batch will be performed mechanically on an automatically controlled basis.

Refractories: Kaiser Chemical and Aluminum Co. plans to break ground for its \$4-million refractories plant at Columbiana, O., by May 1. The company has options on more than 100 acres of land, west of Columbiana, adjoining the Pennsylvania Railroad.

Gypsum: Columbia Gypsum Co., Ltd. (near Spokane, Wash.), has increased its gypsum capacity from 150 to 300 tons daily. The plant, built in 1950, is the only gypsum producer in the eastern part of Washington. Its chief product: agricultural gypsum.

Liquid Oxygen: Linde Air Products Co. (Division of Union Carbide and Carbon Corp.) is installing equipment at its plant in Seattle, Wash., to produce liquid oxygen. The new facilities will have a liquid capacity equivalent to 10 million cu. ft./month of gas.



For Dye Plant, New Parents

WHILE STILL in its infancy, the vat dye plant recently completed by Ciba States Ltd. at Toms River, N.J., is about to pick up a new set of parents. It will be purchased by the Cincinnati Chemical Works of Cincinnati, which since 1920 has been owned by three Swiss dye-

stuffs manufacturers: Ciba Ltd., J. R. Geigy, and Sandoz Ltd., all of Basle. Ciba—which has controlling interest in the Cincinnati firm—has promised to "continue to place its scientific resources and technical know-how unreservedly at the disposal" of the new plant.

73% CAUSTIC SODA

may be a sign
of savings for you!

More and more users, who have been buying 50% caustic soda, are following the trend to 73% concentration. This practice is being advanced and advocated by Columbia-Southern because of the possible savings in delivered cost by converting to the higher concentration.

Naturally, your location and the volume of caustic soda consumed determine the savings realized in switching from 50% to 73% concentration. But, regardless of the amount of caustic soda you use, we suggest you investigate the possible savings in your operation.

The examples of annual savings shown on the sign post are taken from customers' records, selected at random, who converted to 73% caustic soda.

We believe it will pay you to look into the savings of buying 73% rather than 50%. The services of our technical staff are at your disposal. We shall be glad to confer with you, make recommendations, and supply data. Write our Pittsburgh office today.



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\$2,850 THE FIRST YEAR**

**CUSTOMER "B" SAVED
\$2,650 THE FIRST YEAR**

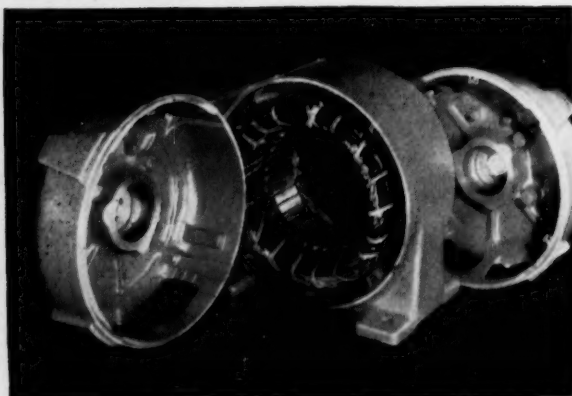
**CUSTOMER "C" SAVED
\$3,500 THE FIRST YEAR**

**CUSTOMER "D" SAVED
\$2,055 THE FIRST YEAR**

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MOST-PREFERRED "POWER PACKAGE."



Electrical System Fact: New fortified insulation includes exclusive Bondar, Bondite and Mylar* for greater protection against the toughest operating conditions.

*Du Pont registered trade-mark

FACT:

The new *Life-Line* **A**

has stronger insulation than any other motor on the market

Meaning what? Simply that the new Westinghouse Life-Line® "A" motor with new fortified insulation can withstand heavier overloads and operate at higher temperatures than any other motor you can buy.

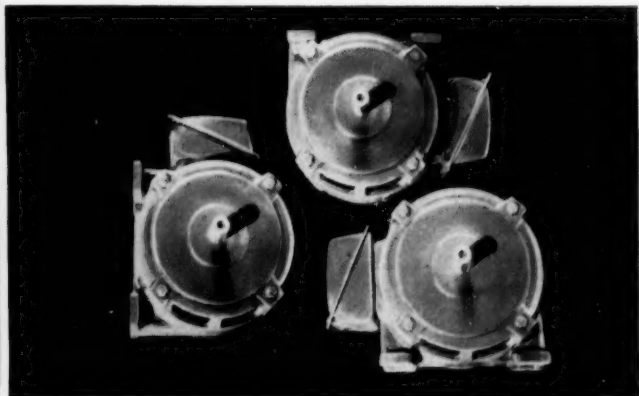
Similar design advances in the mechanical and lubrication systems make Life-Line "A" industry's most preferred motor.

It takes the right combination of *all three systems*—electrical, mechanical and lubrication—to build the best package of power on the market.

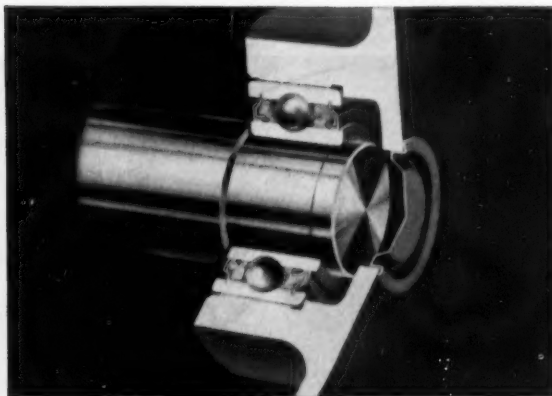
Get all the facts by calling your Westinghouse sales engineer . . .
The Man With The Facts!

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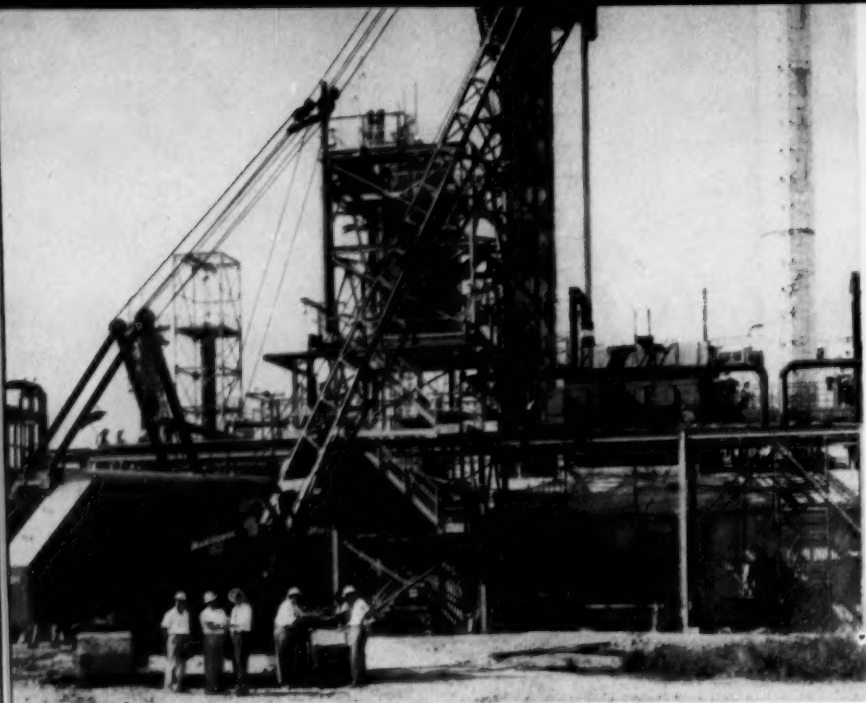
YOU CAN BE **SURE**...IF IT'S
Westinghouse



Mechanical System Fact: New cast-iron housing on both drip-proof and totally-enclosed types. Ventilation openings only in end brackets make the motor drip-proof whether mounted on floor, ceiling or wall.



Lubrication System Fact: New "4-way sealed", pre-lubricated bearing eliminates completely the 3 main causes of bearing failure: 1) contamination, 2) over greasing, 3) wrong grease.



ANOTHER CHEMICAL PLANT: As industry moves South, there's . . .

Slow Ferment in Dixie Labor

By 17 ballots to 6, employees at one new Southern chemical plant* have reversed their region's nonunion tradition, voted to be represented by the CIO's Oil-Chemical-Atomic union. This, it appears this week, is a straw in the wind, a sign that Southern labor is changing attitudes.

Chemical companies that have joined the postwar rush to the South have found the typical Southerner mighty

* Oldbury Electro-Chemical at Columbus, Miss.

glad to work in a plant—particularly if it's near the 80-acre farm he and his sons aim to keep right on running, between shifts.

But what's happening to these new Southern industrial workers now? Are they becoming less "Southern," more "proletarian" in outlook? What about unions, productivity, wage increases, racial segregation?

Changing, But Slowly: In a nutshell, the answer seems to be this:

B & I

Southern labor is changing, albeit very gradually.

Labor unions are making some headway in their organize-the-South campaign—but it's slow going. For example, look at these Southern membership figures for the premerger United Gas, Coke & Chemical Workers (CIO): its districts 9 and 12 had 14,858 members (not all of them always paid up) in mid-1952; during the next two years, they picked up 3,493 new members, dropped 2,320 old ones, for a net gain of 1,173—a rise of less than 8% in an area where there were probably as many as 45,000 unorganized workers in chemical process plants.

Resistance to unions comes on three levels: individual, community and state; and in intensity ranges from indifference to hatred. Many Southerners are reluctant to join unions because they resent being pressured by "Yankee" organizers; others seem to associate unions with labor battles and plant closings in the region's textile industry. One community that has gone all-out to keep unions away: Baxley, Ga., which charges a \$2,000 fee for a license to organize and \$500 for every member signed up. All the Southern states have "right-to-work" laws that forbid the union shop and other forms of compulsory unionism.

Despite such obstacles, unions are pressing their Southern organizing drive. Southern manufacturers polled by CW guess that you can count on possibly five to seven years before



LEADING DOUBLE LIFE: In many Southern counties, industrialization has created new farm-factory social class.

Southern industry is unionized to the same extent as its Northern counterpart—but that a big company going into business in the South can expect its employees to be organized in less than half that time.

Worker Output Climbs: As to productivity in Southern chemical plants, that's changing fairly rapidly. Executives say that the big factor here is equipment; another has been availability of skilled labor.

Up to now, they point out, Southern plants have been considerably less mechanized than those in cooler climes; but new plants with more automatic machinery are giving the Southern workman a more nearly even break in this respect. And while few Southerners have had previous experience in chemical plants, the companies moving into "rebel" territory have found it worthwhile to train local people rather than import skilled Northerners.

How about the old stereotyped picture of the easy-going Southerner whose movements are keyed to his slow drawl? It's strictly fiction, assert officials of both management and labor. Spokesmen of large chemical companies with more than 15 plants in the South and with still more in the North and Midwest say they see "very little, if any, difference" in individual productivity rates on either side of the Mason-Dixon line. Atlanta's Walter Mitchell—vice-president of International Chemical Workers Union (AFL)—tells of one Florida phosphate



ICWU'S MITCHELL: For Southern workers, testimonial on output.

NORTH-SOUTH WAGE GAP: STILL WIDENING?

(Average hourly earnings of factory workers in certain larger communities)

	1949	1951	1953	Dec. 1954
10 Large Northern Cities*	\$1.49	\$1.69	\$1.91	\$1.99
10 Large Southern Cities**	1.08	1.26	1.41	1.48
Regional Differential	0.41	0.43	0.50	0.51

* Boston, Buffalo, Chicago, Cleveland, Detroit, Minneapolis, Newark-Jersey City area, New York, Philadelphia, Pittsburgh.

** Atlanta, Birmingham, Charleston, S.C.; Charlotte, N.C.; Jackson, Miss.; Little Rock, Ark.; Memphis, New Orleans, Richmond, Tampa-St. Petersburg area.

DIXIE: WHERE MORE WORK FOR LESS

(Estimated distribution of straight-time average hourly earnings in factories, by regions)

	Less than 90¢/hr.	90¢-1.25	\$1.25-1.60	\$1.60- \$2	More than \$2/hr.
South	20.2%	29.8%	21.2%	16.2%	12.6%
Northeast	4.1	17.3	27.2	28.7	22.7
Midwest	2.3	9.2	20.0	38.6	29.9
Far West	1.1	5.2	13.3	39.4	41.0

plant that's said to set the productivity pace for all that company's plants, North, South and West.

May Be Narrowing: Latest figures (see table above) show the North-South wage gap to be as wide as ever, but there's some basis for expecting the gap to narrow during the coming decade.

Much of the pressure for reducing the wage spread is coming from the labor unions. The CIO's United Steel Workers have already virtually eliminated the Southern wage differential in their industry, and the chemical unions are trying to follow suit. Mitchell insists that he can already see progress in this direction.

Comments one Southern chemical executive: "In the very small towns, maybe you'll get good labor for a nickel or dime cheaper than Chicago or Newark rates, but you're kidding yourself if you think the worker doesn't know he's getting paid less. He's just willing to take that much less so that he can work on his own farm after hours and on weekends. But take away some of his leisure time and watch what happens: you've got a full-blown union organizing drive

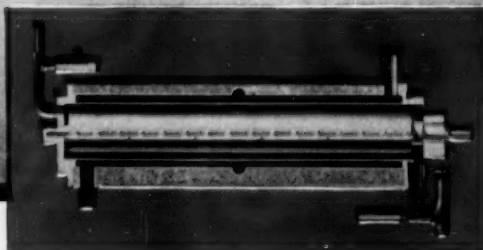
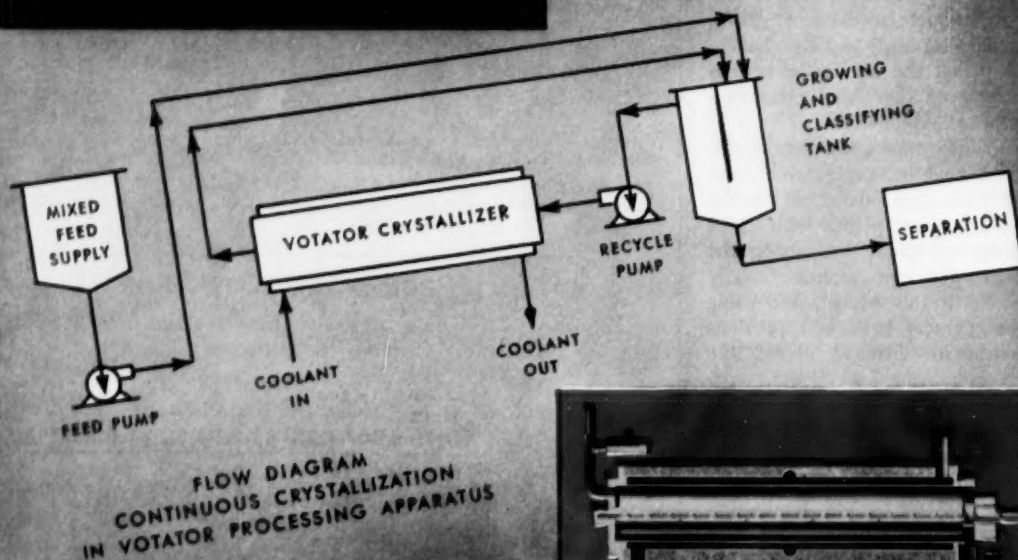
and a strike on your hands!"

Color Line Stands: Up to now, industry observers tell CW, no matter how much a company may want to end racial segregation, it just hasn't been able to in the South. One notable exception: the Du Pont-operated atomic energy project near Aiken, S.C. As a supplier to the federal government, this plant is being operated on a nonsegregated basis.

Much of the "different" nature of Southern labor can be traced to the fact that many of the workers live on small farms where they plant, plow, hoe and harvest during their "off" hours. But this too is changing, and again the changing force is mechanization. It's becoming increasingly uneconomic to run a small farm on hand-and-foot labor when much larger tracts can be worked more efficiently with modern farm equipment. As the "one-mule" farms are consolidated into "two-tractor" units, Southern factory workers will switch to town life.

As that happens, they'll become more and more like their Northern cousins—and will want to be treated the same way.

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Here's How Manufacturers' Drug Sales Are Rising

(in millions of dollars)

Ethical Sales	1953	1954	Outlook 1955
Antibiotics:			
Penicillin	120	127	Steady
Streptomycin	48	52	Steady
Broad-spectrums	116	151	{ Depends on outcome of tetracycline patent struggle Uncertain
Others	21	26	
Vitamins and hematinics	195	190	
Endocrines			
Cortisone and ACTH	43	50	Steady
Others	67	67	Promising
Sulfonamides	48	50	Good
Antihistamines	48	48	Steady
Barbiturates	44	44	Slowing
Biologicals	46	46	Steady
Acetylsalicylic acid	20	21	Steady
Others	140	142	Promising
Proprietary sales	530	546	Slowly Rising
Total drug sales	1,486	1,560	

Source: 1953, U.S. Tariff Commission; 1954, Arthur D. Little, Inc., estimates.

Settling into Normalcy

After several seasons of bucking discouraging cross-winds, the pharmaceutical industry seems to have settled on a relatively steady course again.

The outlook is good but not spectacular; no substantial expansion growth is anticipated this year; prices of antibiotics are expected to decline—due to the patent controversy over tetracycline (CW, April 2, p. 13).

Here—by product groups—is how the forecast shapes up:

Antibiotics

Penicillin sales have become quite stable lately, show only a gradual tendency to increase. Barring any drastic shake-up in the antibiotic field in general, it is anticipated that this trend will carry far into 1955. The market for streptomycin (including dihydrostreptomycin) is also relatively stable; no significant sales increases are expected in the near future.

One factor that helped to put a ceiling on expansion possibilities for streptomycin: current TB therapy is tending toward use of other therapeutic agents (such as isonicotinic acid hydrazine and *p*-aminosalicylic acid).

Broad-spectrum antibiotics face a much less certain future. Reason: Chas. Pfizer & Co. and Lederle Lab-

oratories (two of the five major producers) are now operating under cross-licensing agreements; Pfizer thereby has been granted a patent on the tetracycline manufacturing process as well as product patents. Bristol, Upjohn and Squibb state that they won't withdraw their products from the market, plan to force Pfizer to fight out in the courts its suit for triple damages.

Impact of the controversy is likely to carry over to all broad-spectrum antibiotics.

Vitamins and Hematinics

Chief concern over price cuts in the vitamin field is centered on bulk sales; tremendous quantities of vitamins are now being used in food enrichment, where costs are critical. Imports from Germany and Japan are causing some worry, too, are likely to increase in 1955, affecting such companies as Merck, Hoffmann-LaRoche, Pfizer, Distillation Products, Dawes Silica Mining, and Nopco.

Endocrines

Prospects for sales of cortisone and ACTH may be expected to brighten in the coming months, however, as new uses continue to crop up. Upjohn, Merck, Schering and others are working on cortisone analogs or derivatives

that are more effective than the parent product and do not give rise to some of cortisone's serious side effects (CW, March 19, p. 70).

Sulfonamides

Sulfonamides have displayed a continuous (though unexciting) growth in the past year, and the trend is expected to continue through 1955.

Antihistamine, Motion-Sickness Drugs

New combinations of antihistamines with antibiotics are sparking sales in this product group, promise to maintain dollar volume in the months ahead. Sales of Dramamine (Searle), Bonamine (Pfizer), and Marezine (Burroughs Wellcome) are enjoying popular acceptance; release of Dramamine and Marezine for over-the-counter sale is expected to stimulate dollar gains even further.

Barbiturates

Sales of barbiturates are leveling off today and, following the introduction of newer sedative products, may decrease gradually in the future.

Ciba has just released a new non-barbiturate—synthetic (Doriden), which shows promise, could become another multimillion-dollar product.

Biologicals

Gamma globulin is expected to jack up sales volume in this class by several million dollars this year; new polio vaccines should swell the tide.

Aspirin

In spite of a host of new analgesic agents, the old standby aspirin continues to gain in dollar volume each year. There's a need (and always the possibility of) a superior analgesic, but so far researchers have failed to turn up a good method of measuring pain threshold, can't find as potent a product with so few side reactions.

Other Products

Two outstanding developments in 1954 may yet open up substantial sales potential this year. Besides *Rauwolfia serpentina* derivatives (used as hypotensive agents), Smith, Kline & French's Thorazine is making strides—not only as an antinauseant, but also in the treatment of mental disease.

These two products alone could be the opening wedge for new treatment in the psychiatric field, and open up many possibilities for the drug industry.

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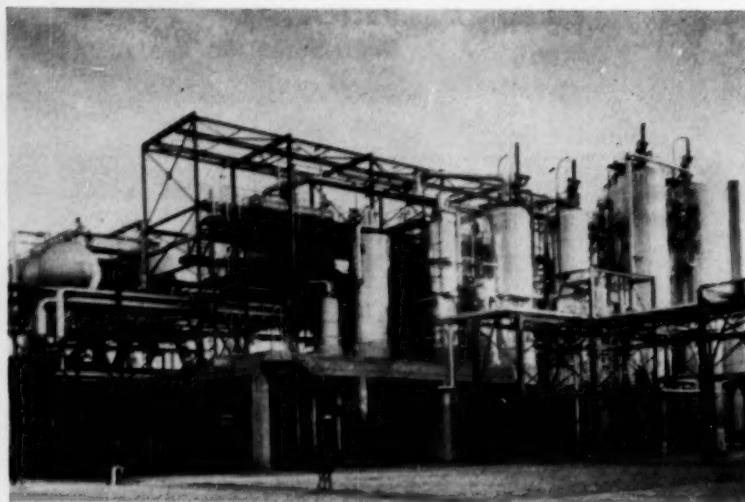
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FOREIGN.

Petrochemicals/Holland: N. V. de Bataafsche Petroleum Maatschappij, a member of the Royal Dutch Shell Group, has just put onstream a new deasphalting and decarbonization unit at Pernis, designed for a maximum oil charge rate of 12,000 bbls./day and a propane circulation rate of close to 100,000 bbls./day. Raw stock fed into the Pernis unit is La Pez reduced crude.

Synthetic Rubber/West Germany: Chemische Werke Huels, at Marl, in the Ruhr, plans to start construction of a synthetic rubber plant late this year. Annual capacity: 30,000 tons/year. Total West German consumption of rubber: over 120,000 tons/year.

Paper Products/Venezuela: The government-owned Corporacion de Fomento (CVP) plans to build a \$6-million plant to produce paper products from bagasse. Estimated capacity: 2,300 tons/year of unbleached sulfate pulp. Construction starts in July.

Soap Products/Venezuela: Colgate-Palmolive Co. is building a soap products plant in Valencia, Venezuela, capital of the state of Carabobo. Estimated date of completion: Dec. '55.

Expansion/Colombia: W. R. Grace & Co. (New York) plans to spend \$10 million in Colombia during the next

five years. Among the projects under consideration as possible investments: an aluminum plant in Barranquilla.

Two bauxite deposits have already been discovered in the little South American republic. One, in the Medellin area, is currently being explored for its commercial possibilities.

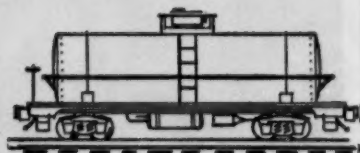
Alkylates/Great Britain: British Petroleum Chemicals, Ltd., and Oronite Chemical Co. (San Francisco) have teamed up to form a new company (Grange Chemicals, Ltd.) to produce alkylates in Great Britain.

BPC is jointly owned by British Petroleum Co. and Distillers Co., Ltd.

Sulfur/Sicily: Following a week of feverish activity, the Sicilian sulfur crisis seems to be simmering down again. After receiving word that 10,000 miners (members of the Communist-controlled General Confederation of Labor) would occupy the island's 360 pits in defiance of an order to close the mines, the government stepped into the struggle, passed a bill designed to make Sicilian sulfur competitive in world markets, and eased its laws to enable the Bank of Sicily to grant mine owners an extraordinary loan to pay miners' back wages.

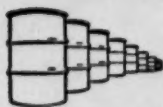
The Sicilian sulfur industry has been in a crisis since the fall in world prices following the Korean War, and mine owners are reported to have piled up unsalable sulfur stocks estimated at from 250,000-300,000 tons.

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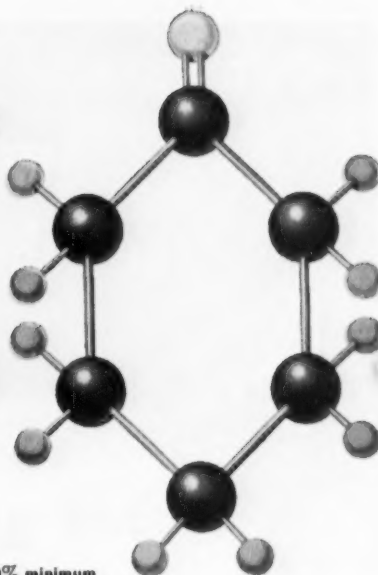
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Cyclohexanone Solvent ($C_6H_{10}O$)



SPECIFICATIONS*

- Cyclohexanone content 97.70% minimum
- Color, g. $K_2Cr_2O_7$ /l 0.005 maximum

PROPERTIES

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- Flash Point (Open Cup) 129°F. (53.9°C.)
- Viscosity: 17.2°C. 2.30 centipoises
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- Soluble in ether, alcohol and most organic solvents.
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- Corrosion characteristics: Not corrosive to metals under normal conditions.

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FINISHES: Solvent for lacquers, especially those containing nitrocellulose or polyvinyl chloride and its copolymers . . . as a thinner for such lacquers. Prolongs drying period of lacquers.

PLASTICS: Solvent for resins, including polyvinyl chloride and its copolymers and methacrylate ester polymers. An intermediate for cyclohexanone and cyclohexanone-formaldehyde resins. Also used as an active ingredient in vinyl dispersions.

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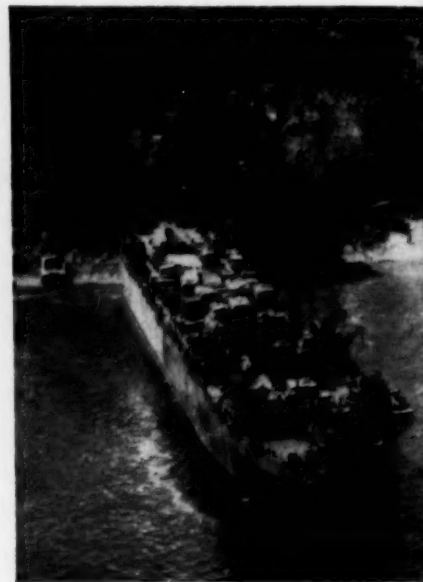


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Ship Claims Mount: Relatives of the crew members of the sulfur-carrying S.S. *Southern Districts*—which disappeared at sea four months ago while en route from Port Sulphur, La., to Portland, Me.—have filed claims totaling \$2.7 million against the shipping firms involved, Southern Steamship Co. and Norfolk Steamship Co., both of Wilmington, Del. Those two companies earlier had filed an admiralty action asking the U.S. District Court either to exonerate them of responsibility for the presumed loss of the ship or else to limit their liability. The *Southern Districts* was one of the LST's—a type used in wartime assault landings—that had been converted for commercial shipping. After several of these vessels were lost at sea, the U.S. Coast Guard prohibited their use as freighters.

'Black Market' Opposed: Efforts to prevent a "black market" in the Salk antipolio vaccine are planned by the medical profession. Last week, the Medical Society of the County of New York—one of the largest affiliates of the American Medical Assn.—adopted a resolution calling for equitable distribution of the vaccine and reasonable fees for administering it. It was pointed out that if the vaccine is found to be effective and safe, the National



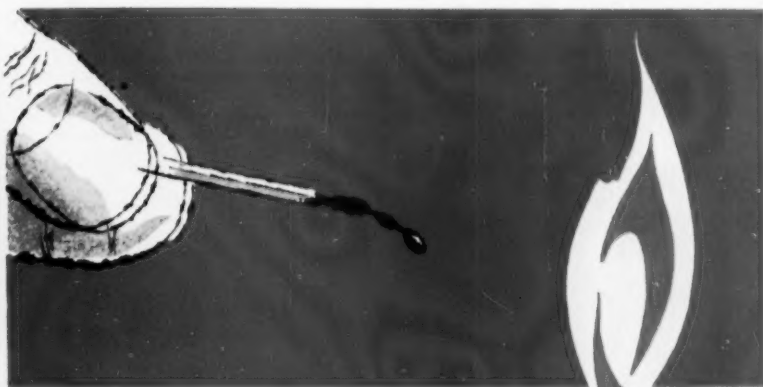
U.S. NAVY

they shone; as freighters, they sink.

Foundation for Infantile Paralysis will offer to inoculate 9 million children free, and that various pharmaceutical companies will be able to sell to physicians (at about \$4.20 for a three-injection unit) enough vaccine for another 9 million children. This will leave out the other 30 million children in the 1-to-19 age group in the U.S., with the result that many parents may be offering to pay higher fees in order to make sure that their children are treated.

Lubricant Lawsuit: In U.S. District Court at Detroit, the AP Parts Corp. of Toledo has brought a \$500,000 civil suit against G.L.O., Inc., charging that G.L.O. and its principal director John King are breaking a contract that gave AP Parts the sole right to make and sell Miracle Power, a graphited lubricating oil.

Complaint on Chromium: A patient in the Veterans Hospital at Nashville, Tenn., is asking for a \$50,000 judgment against the Louisville & Nashville Railroad. He states that the railroad failed to provide necessary safety chemicals and equipment while he was working as a diesel engine repairman in Louisville last year; and that as a result of the alleged lack of safety supplies, he was permanently disabled by contact with chromium compounds and other chemicals.



Got something hot on the fire? Call on us

It's true that if you toured our modern research facilities you'd find a whole rash of bunsen burners, test tubes, beakers and flasks. By the same token, it's true that you'd find the last word in scientific research equipment — including the electron microscope, spectrometer, radioactive tracers, Geiger counters. ¶ But these are only tools. The priceless ingredient that we have to offer is the minds of men — creative scientists with a boundless curiosity, and the skill to satisfy that curiosity by solving problems of utmost complexity in practically every area of chemical research . . . for their backgrounds in research are broad and varied — ranging, for example, from chemical engineering and organic synthesis, to inorganic and analytical chemistry. Our broad experience may be of help to you. ¶ If you have a chemical or process problem on the fire — by all means, get in touch with us. We'll be glad to lend technical assistance. We may even have the answer you're looking for right in our files. Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.



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HEADQUARTERS FOR ALKALIES



MITSUI CHEMICAL: Should exceed last year's sales by 5% this year.

Prelude to Recartelization

When its three former trading companies were reamalgamated in Tokyo last week, Mitsui—the mighty prewar chemical cartel—seemed well on the way toward rebuilding its commercial empire. Dissolved under the MacArthur postwar SCAP directive (designed to break up the *Zaibatsu*—“big business” in Japan), the chemical companies, Mitsui Chemical Co., Toyo Koatsu, and Miiki Gosei Co., will derive important export benefits from the trading companies’ reunion. Chief immediate gain: the opening up of wide new markets, which will permit all three firms to push production up to capacity, thereby boosting profit margins. Next logical step: merger of the chemical companies.

Gaining Pace Fast: From a production standpoint, here’s what each of the three firms would offer to such a combine:

- Mitsui Chemical—which produces the largest variety of chemical products—is now exceeding last year’s production at a rate that should mean a 5% increase in sales this year.

About 25% of the company’s production is devoted to dyestuffs, includes 50 tons/month of indigo. Manufacture of intermediates accounts for 35% of production—phenol alone is turned out at a rate of 600 tons/month—about 85% of Japan’s total output. (This figure will be pushed up to 900 tons/month by year’s end.)

Other important intermediates produced: aniline and chlorobenzene.

The pharmaceutical division of Mitsui Chemical is relatively small (production: 50 tons/month), but it will contribute this year 80% of Japan’s aspirin, 90% of its salicylic acid, 50% of its aminopyrine.

In the agricultural chemical field, Mitsui is a major producer of benzene hexachloride, insecticides and fungicides. The company is Japan’s leading maker of acetylene—which it supplies to Toyo Koatsu for conversion into polyvinyl chloride.

- Toyo Koatsu in a minor way also produces industrial chemicals—including methanol (1,500 tons/month) and formaldehyde (1,280 tons/month).

Since the completion of Mitsui Chemical’s acetylene plant in March ’51, however, its main emphasis has been on polyvinyl chloride. Present rate: 300 tons/month.

- Miiki Gosei’s latest big expansion program has been in production of urea resins. Bread-and-butter production items: various detergents, phthalic anhydride, cresol (12 tons/month), and carbon black (50 tons/month).

Joint Venture: Most ambitious postwar expansion move will get under way this summer when the three companies start construction of a petrochemical plant. Mitsui Mining, and Mitsui Melting and Mining Co.

are also linked into the deal. Total cost: \$2.8 million. Three gases—ethylene, propylene, and butylene—will be used to produce an annual estimated 300 tons of polyethylene, 200 tons of ethylene glycol, 360 tons of acetone, and 600 tons of phenol. (The phenol output will be in addition to the 900-ton capacity onstream or abuilding).

Use of alcohol as a raw material to produce polyethylene, is impractical, the Japanese firms have decided, because of cost. But utilization of oil looks feasible—in view of the recent expansion of Japanese oil refineries.

Observers point out that the most important feature of the petrochemical expansion is the fact that once again Mitsui is banded together. Production was good last year (Toyo sales, \$42 million, operating at 82% capacity; Miiki sales, \$3.5 million, operating at 100%; Mitsui sales, \$20 million, operating at 60%).

But the greatest single block to expansion has been the lack of overseas markets. Last year, for example, Mitsui exported only 8% of its production—chiefly to Red China, India, Pakistan and South Korea. The other two companies did slightly better—Toyo shipped 27% of its ammonium sulfate and 80% of its urea overseas; Miiki exported 90% of its urea resins to Singapore.

That situation promises to clear up immeasurably with consolidation of the trading companies—chiefly through the strengthening of credit ratings. And with it profits should soar.

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Aldehydes	Ketones	Salts
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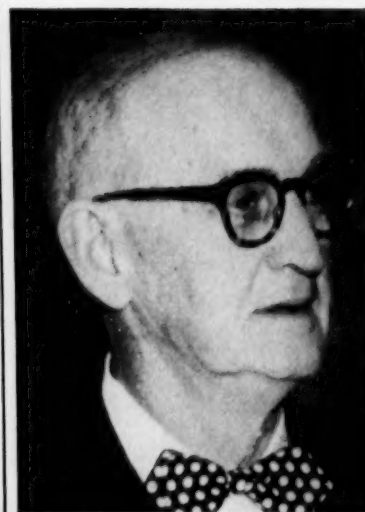
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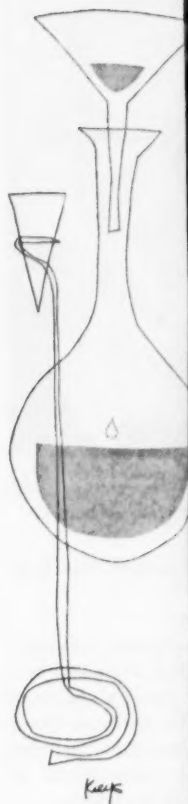
AFL'S MOFFETT: For chemical union unity, he's more than willing.

LABOR

Merger Goal Talked: Leaders of AFL and CIO unions in the chemical field are agreed that their groups should work toward a merger next year, soon after the AFL and the CIO are welded together at the top. President Edward Moffett of International Chemical Workers Union (AFL)—who earlier had suggested the one-year target—says he's aware of the obstacles to merger of the big chemical unions, but promises that "the labor movement will find our union ready and willing to participate sincerely and actively in working toward this goal." And O. A. (Jack) Knight—first president of the newly formed Oil, Chemical & Atomic Workers International Union (CIO)—says he sees the possibility of bringing more than a million oil, chemical and atomic workers into one organization.

Declares Knight: "I subscribe to the idea expressed by President Moffett that within a year—possibly a little longer—the AFL Chemical Workers will join with us to enhance the bargaining strength of a great union moving forward in oil, chemicals and atomic energy. These are wealthy industries that can set patterns to be followed by all of industry in this country." He adds that these industries "have not attained the degree of organization that they should."

Knight's new union, by the way, is hoping the CIO will come through with the organizing fund of \$3-5 million that was hinted to be forthcoming



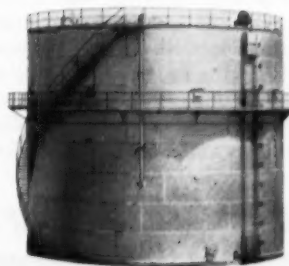
today, there is a safer, simpler, surer way to store gas. The antiquated bell jar was the prototype of many gasholders still in use. The modern Wiggins gasholder, using a 100% dry seal, is the first successful departure from "bell jar" construction.



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Plant In
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*Two Dorco Type W Pumps
installed for slurry handling.*

INDIA is doing big things which will benefit the country and its people. And the new United Provinces Government Cement Factory, which was put into operation in 1954, is but one case in point.

The first closed-circuit grinding plant in India and the largest plant in Asia, it has a capacity of 3500 barrels a day. This output plays an important role in India's comprehensive dam building program for hydroelectric power and irrigation control.

The standard wet process flowsheet is employed using two Dorr Classifiers, eight Dorr Slurry Mixers and two 100' dia. Dorr Thickeners. Wet materials handling is accomplished with three Dorco Type W pumps and twelve A. C. Wilfley & Son pumps of various sizes. Dorr-Oliver, Ltd. of London supplied most of the equipment.

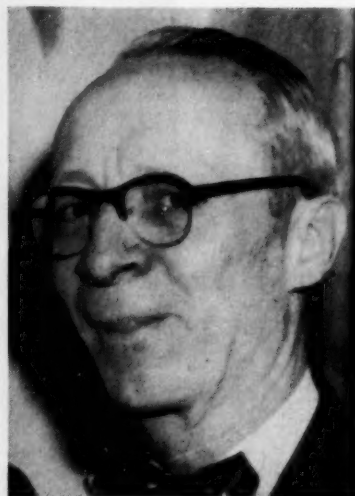
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WIDE WORLD

CIO'S KNIGHT: On merger with Moffett's unit, he'd wait a year.

if the oil-chemical merger was finalized.

State-Federal Jurisdiction: Industrial relations directors and labor attorneys are studying last week's Supreme Court decision in the Anheuser-Busch case, marking a boundary between state and federal jurisdictions in labor disputes. It says the states:

- Can't prohibit exercise of rights guaranteed by federal law, such as collective bargaining.
- Can't require strike-vote procedures in conflict with those set by federal law.
- Can't keep public utility employees from peaceful striking to enforce demands for wages, hours and working conditions.
- Can't enjoin conduct that has already been declared an unfair labor practice under federal law.
- Can't certify a collective bargaining agent where a federal board, if called upon, would use its certification procedure.
- Can enjoin mass picketing, threats of bodily injury and property damage, obstruction of public roads, and picketing of employees' homes.
- Can enjoin recurrent, unannounced work stoppages.
- Can forbid enforcement of a maintenance-of-membership clause in a union contract.
- Can award damages based on violent conduct, even though that conduct is an unfair labor practice under federal law.

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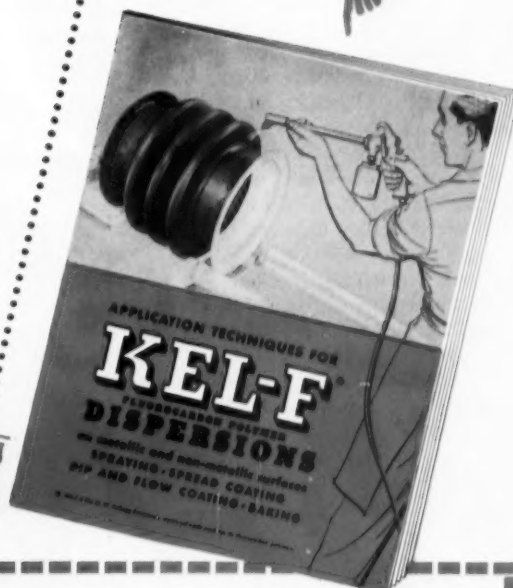
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Other applications (please list) _____

Confined to Sidelines

Of special interest to companies with many technical and scientific employees: last week's Supreme Court decision in the Westinghouse case, in which a limit is placed on a union's right to act for its members, and light is thrown on the role of a professional union during a strike by hourly paid workers.

It all started back in April '51, when production workers represented by the International United Electrical Workers (CIO) staged a one-day strike at Westinghouse's Pittsburgh plant to protest the layoff of a shop steward. About 4,000 technical and professional employees represented by the Assn. of Westinghouse Salaried Employees also were absent from work that day; one version was that they refused to cross the IUE picket lines, another was that the IUE demonstration prevented the salaried workers from entering the plant.

Westinghouse deducted one day's pay from those men's salary checks, and the AWSE filed suit in federal district court, charging that the company had violated the collective bargaining agreement. When the district court ruled that the union had no cause for action, the union appealed to the circuit court. A three-judge panel couldn't reach a decision; the full seven-judge panel—by a 4-to-3 split—then held that the federal courts had no jurisdiction.

Last week, the Supreme Court decided by 6-2 vote: while individual employees may sue for wages, the Taft-Hartley law doesn't give federal courts authority to hear a case in which a union is suing for its members' wages.

Holdouts Listed

Four Pacific Northwest chemical firms affected by the 50% cutback in interruptible energy from Bonneville Power Administration last month have failed to make arrangements with BPA to make up the loss, the agency says. Other companies concerned will make up the lost energy by buying steam or imported hydro power through BPA pooling.

Companies not buying extra energy through BPA: Electro Metallurgical Co. and Pennsylvania Salt Co. at Portland, Victor Chemical Works at Silver Bow, Montana, and Rayonier,

Inc., at Port Angeles, Wash.

Pennsalt, however, has contracted directly with Pacific Power & Light Co. for steam energy to make up some of its cutback.

No figures have been released revealing how much power Pennsalt will buy, or at what cost. Hardest hit by the power cut: aluminum reduction mills.

Economic Tie-in

In a move apparently aimed at tying French colonial territories closer to the motherland, Pechiney Co. and Ugines Co. are planning to build an aluminum plant in the Cameroons. Estimated capacity: 30-45,000 tons/year of aluminum. Present French production: 120,000 tons/year.

Strange feature of the plan is that, contrary to usual procedure, raw material (in the form of alumina) from continental France will be exported to the Cameroons—there made into aluminum. Main reason for selection

of the Cameroons as a plant site: electric power (one of the essential resources needed in aluminum production) is relatively scarce in France, plentiful in North Africa.

Pechiney will assume management of the venture, will operate the aluminum facilities under the corporate title of the Aluminum Co. of the Cameroons. Ugines holds a 20% interest in the firm.

Construction starts immediately, with partial production scheduled for early 1957—full production by 1959.

Investment has been estimated at somewhere between 20-35 billion francs (\$57-96 million)—according to the size plant ultimately approved. If financing proves to be a stumbling block, the companies are expected to call on government support—with good chance of success. Reason: the French government currently views economic development of Africa as a strong plank in its own industrial development.



Sketching Sexagenary Look-Back

WHEN DISNEYLAND Amusement Park is opened at Anaheim, Calif., this summer, some 60,000 visitors/day will have an opportunity to view the Upjohn Co.'s replica of a typical Main Street pharmacy of the 1890's. Here, design details are being worked out by

Walt Disney, famed film producer, Jack Gauntlett, company advertising manager, and Donald Gilmore, board chairman. Completely company-financed, the corner drugstore will be sectioned off—one half à la 1890; the other, circa 1955—to display Upjohn products.

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Working Guide Offered

The government has set up new rules and regulations under which it will allow filing of mineral claims and leases on government land.

But the criteria (although precisely outlined) won't affect oil, natural gas, sulfur, and potash companies as much as had been anticipated.

Appearing in the March 9 *Federal Register*, the rules basically set up provisions under which the Interior Dept.'s Bureau of Land Management can administer the Barrett bills—which passed Congressional scrutiny last year. The bills—named for Wyoming Sen. Frank Barrett—allow cross-filing between and among the various types of claims, leases, and location rights which provide for private development of natural resources.

Basic impetus for passage of the Barrett bills was a push by both oil and gas explorers as well as uranium prospectors. Under previous law, lands on which oil (or uranium rights) had been granted were closed to exploration for the other. This, the prospectors claimed, seriously hampered their prospecting possibilities.

In effect the new regulations should avoid this handicap; but a number of companies are openly disappointed in the number of stipulations noted in the Dept. of Interior's interpretation. Reason: in view of the number of notices required, companies (or individual claimants) will be forced to reveal their interest (by commodity) in a particular area before they're ready to start development work.

Interest Upsurge

Notice that Molybdenum Corp. of American had uncovered a substantial columbium mine in the Oka area of Quebec has turned that section into a veritable boiling pot of activity.

Demand for mining claims has risen to an unprecedented rate; great attention is being paid to stock issues of companies that have an obvious edge on making similar discoveries. (Included: Coulee Lead & Zinc, Oka Rare Metals, St. Lawrence River Mining Corp., and Yellowknife Bear Mines and Pardee.)

Coulee Lead & Zinc, at last count, seemed closest to making a major strike, was reporting favorable drill information with the two drills it has in operation.

Observers note that nothing has

equaled the excitement building up since last summer's uranium rush.

Adding to the interest upsurge: U.S. prospectors are reported in the area looking over possibilities of exploration.

Preference Asked

Sen. Hubert H. Humphrey (D., Minn.) has introduced a bill in the Senate designed to give firms injured by increased imports preference in bidding for government contracts.

Aimed at bolstering Senate support for extension of the reciprocal trade program, the bill would provide that any domestic producer ruled to be in competitive danger by the Tariff Commission would be entitled to a percentage advantage of up to 25% on government contracts.

Reason for the bill, Humphrey maintains, is that although he supports extension of Reciprocal Trade (*see story, p. 17*), he knows that in some special cases increased imports will cause injury to particular companies

or communities. Way to protect them, he thinks, is to adjust government rules to "prevent specific injury" as much as possible.

Stamp of Approval

Plans to merge Warner-Hudnut, Inc., and the Lambert Co. have been approved by stockholders of both companies.

The new company will be known as Warner-Lambert Pharmaceutical Co.

Terms of the merger provide that holders of Lambert common stock will receive one share of Warner-Hudnut common; Edward T. Williams (Lambert president) becomes chairman of the new firm's executive committee.

Warner-Hudnut manufactures pharmaceuticals and cosmetics; Lambert turns out both pharmaceuticals and drug-related items.

The move, from the standpoint of both firms, is in the direction of horizontal integration. No major expansion plans are being considered—at least in the immediate future.



Their Aim: More for Mexican Miners

WHATEVER HAPPENS to prices of chemicals based on mineral products this year will be—in part, at least—a result of current negotiations being conducted by these three officials of the Mexican miners' labor union known as Sindicato de Trabajadores Minera, Metalurgica y Similares: Esteban Guzman, Filiberto Rubalcaba, and

Serafin Macias. Their union's 57,000 members produce a big share of Mexico's many thousand tons of some 18 minerals that are shipped into the U.S. for chemical processing and other uses. The union started out asking a 40% wage increase, now indicates that it will settle for a rise of 15-20% plus certain new fringe benefits.



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Uses

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Properties

Molecular Weight	31.06
Boiling Point at 760mm, °C	- 6.79
Flash Point, Tag Open Cup, °F	34 (30% sol)
Density at 20°C	0.912 (30% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.6 (30% sol)

DIMETHYLAMINE $(\text{CH}_3)_2\text{NH}$

Uses

Raw material in manufacture of thiuram sulfide-type vulcanization accelerators and of dimethyldithiocarbamic acid salts used as fungicides. Neutralizing and solubilizing agent in preparation of concentrated solutions of 2,4-D salts. Manufacture of anti-malarials.

Properties

Molecular Weight	45.08
Boiling Point at 760mm, °C	6.88
Flash Point, Tag Open Cup, °F	54 (25% sol)
Density at 20°C	0.921 (25% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.7 (25% sol)

TRIMETHYLAMINE $(\text{CH}_3)_3\text{N}$

Uses

Preparation of long-chain quaternary ammonium compounds used as softeners, lubricants and waterproofing agents for textiles. Used with benzoyl peroxide to "set" methacrylate resins. Synthesis of cationic surface-active agents.

Properties

Molecular Weight	59.11
Boiling Point at 760mm, °C	2.87
Flash Point, Tag Open Cup, °F	38 (25% sol)
Density at 20°C	0.913 (25% sol)
Weight per U.S. Gallon at 68°F, lbs.	7.6 (25% sol)



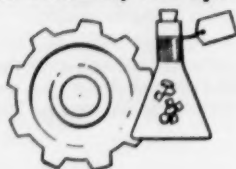
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BUSINESS & INDUSTRY.



UAW'S REUTHER: As kingpin in annual wage drive, is he starting...

Avalanche on Industry?

This week, the United Auto Workers (CIO) starts building up its special \$25-million strike fund as a weapon in its forthcoming battle for a guaranteed annual wage clause in new contracts with General Motors and Ford.

It's the start of the first full-scale union effort to win this kind of pay plan—a plan that organized labor hopes will cascade out of Detroit and avalanche into nearly all other industries.

That the auto companies will put up stout resistance to this demand is certain; that their resistance will be successful is not by any means certain. To chemical management, this situation is surcharged with suspense—and not entirely the kind of suspense felt by spectators.

Hatching Grounds: For one thing, many employee benefit plans have come to chemical plants after having been hatched in the auto, steel and other giant industries. Examples: non-contributory health insurance, paid rest periods, \$2/hour wage rates. The obvious question: will GAW be next?

Secondly, chemical executives are wondering: If GAW becomes the rule in autos and steel, what will be the effect on those industries' suppliers? Is it to be expected that auto production will be evened out over the entire year, and that the demand for automotive finishes, for example, will then be non-seasonal?

How seriously the Auto Workers

take their GAW demand can be measured by how much they're willing to pay to get it. In order to beef up their strike fund, delegates at last week's UAW convention in Cleveland voted to triple their membership dues (new rate: \$7.50/month), thus indicating that they'd be willing to wage a long strike if necessary. However, it's estimated that only \$5 or \$6 million will be in the war chest by June, when Ford and GM contracts will expire; so that an extended strike is not too probable this year.

Coming Closer: Just how real is the GAW threat to chemical employers? For several years, the CIO's former chemical union leaders have been talking about the desirability of GAW, but haven't pressed any action. President O. A. (Jack) Knight of the new Oil, Chemical & Atomic Workers (CIO) has said that he doubts whether GAW is needed by chemical workers; but Knight may have picked up enthusiasm for GAW last week when he visited the Auto Workers' convention.

Knight—a long-time ally of UAW President Walter Reuther in the CIO's internal politics—made a brief address to Auto Worker delegates. He announced that OCAW intends within the next five years "to become the biggest union in the CIO—even bigger than the UAW." AFL President George Meany, who also spoke at the convention, made it clear that he hopes the UAW wins a GAW clause this year. Meany added that he was for GAW 100%, but not necessarily in every industry.

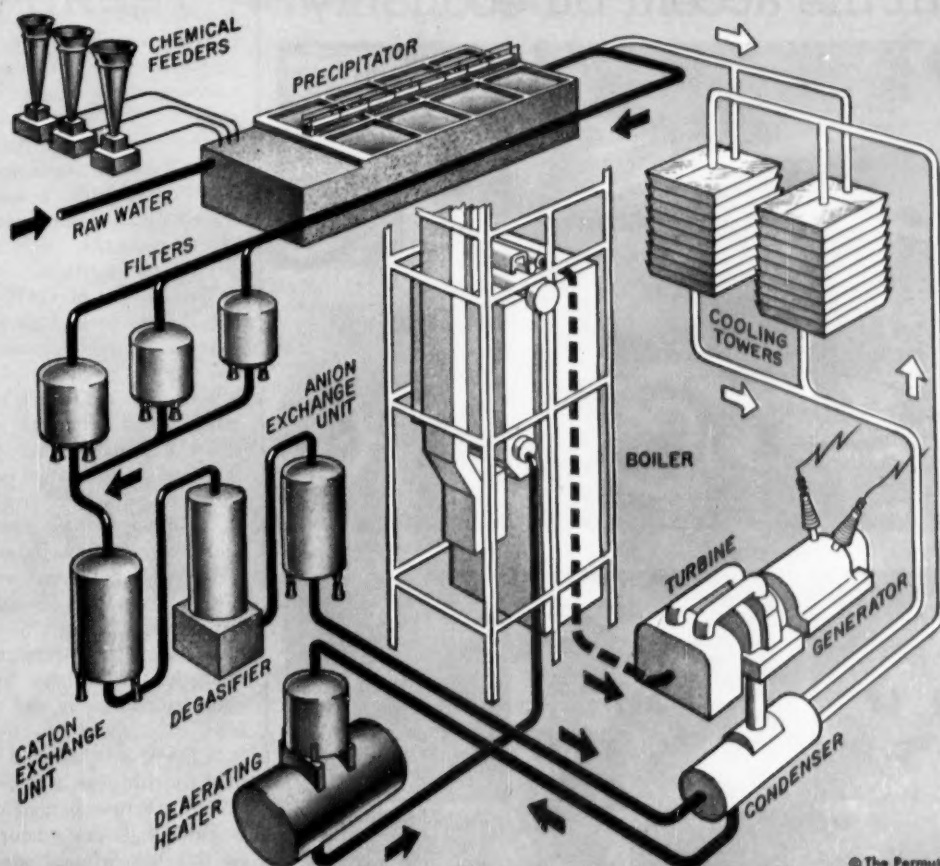
GAW sentiment is already sprouting in various other industries. It was no surprise when 12,000 Wright Aeronautical employees voted for GAW, because they're UAW members themselves. It was somewhat less expected when the AFL's Brotherhood of Maintenance of Way Employees—representing some 200,000 railway employees—came out for the equivalent of a guaranteed wage plan. ("Reuther," tersely remarked BMW President T. C. Carroll, "has the right idea.") And GAW hopped closer to the chemical industry when the United Glass Workers (CIO) decided on GAW as one of the demands it will present to Libbey-Owens-Ford and Pittsburgh Plate Glass (CW Newsletter, March 26).

How It Works: Reuther, principal protagonist of the campaign, has al-

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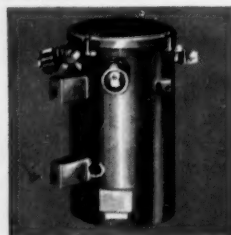
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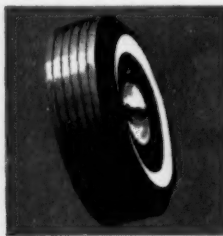
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ready told GM and Ford what he wants in the way of a GAW clause. It's understood that the Reuther plan would require the company to shoulder all the costs—mostly on a pay-as-needed basis, but with an "adequate" reserve fund.

Whenever the company lays off an employee who has worked for the company three months or more, the company will keep paychecks going to that person for a period equal to one-half of the man's company service. For example, a man who had served for one year after the three-month probation could draw GAW pay for six months.

The amount of GAW money that an employer would have to pay out from his current operating budget in any one pay period would be limited to a certain—but not yet definite—percentage of the current payroll total. If GAW obligations were to rise above that limit, the employer could dip into the reserve fund.

It appears that the Eisenhower Administration will not take sides in the GAW dispute. Secretary of Labor James Mitchell declined to comment on the issue, except to say that "it seems to me that government has an obligation to let labor and management bargain freely and not to interfere."

If GAW isn't adopted in the auto industry this year, it'll surely pop up again in future bargaining. But it's probable that other unions won't insist on this benefit until it's been tried by the Auto Workers.

KEY CHANGES . . .

George V. Du Pont, to manufacturing manager, Diamond Black Leaf Co., Diamond Alkali Co. (Cleveland).

Ralph Wechsler, to president, Nopco Chemical Co. (Harrison, N.J.).

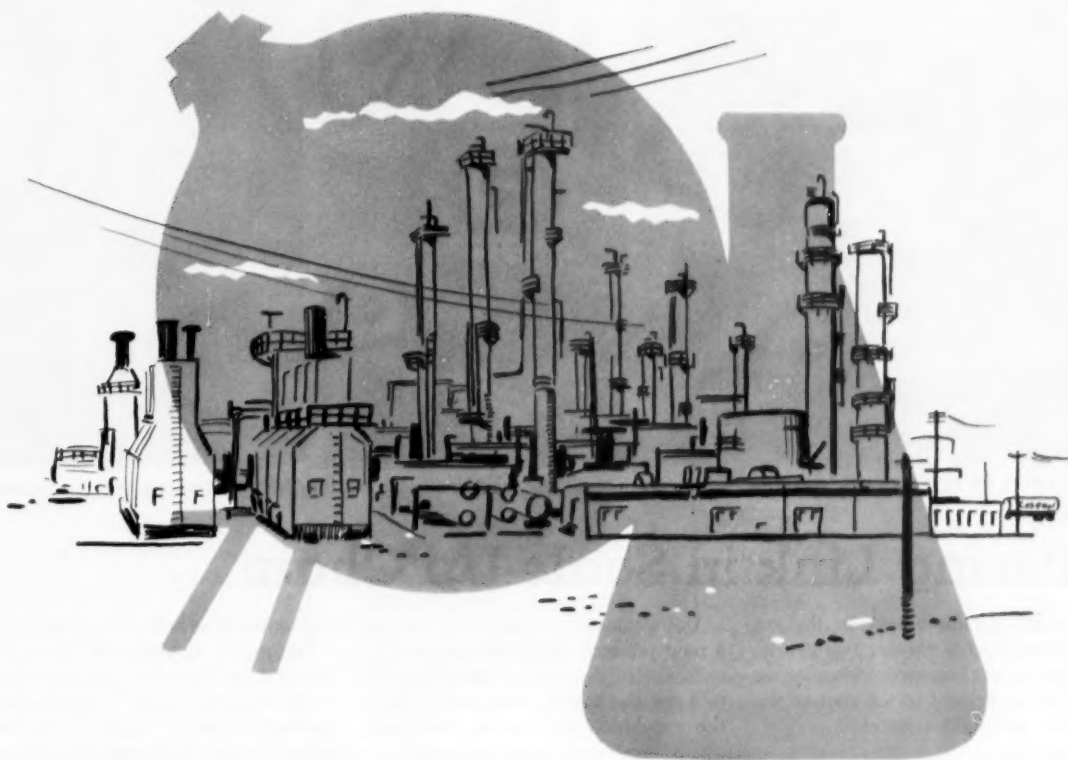
Carl F. Prutton, to director, Food Machinery & Chemical Corp. (New York City).

Ralph E. McLeod, to Western regional manager, Agricultural Sales Division, Chas. Pfizer & Co., Inc. (Brooklyn).

Gordon Kiddoo, to vice-president, development, National Research Corp. (Cambridge, Mass.).

Frank Kay, to director, Walworth Co. (New York City).

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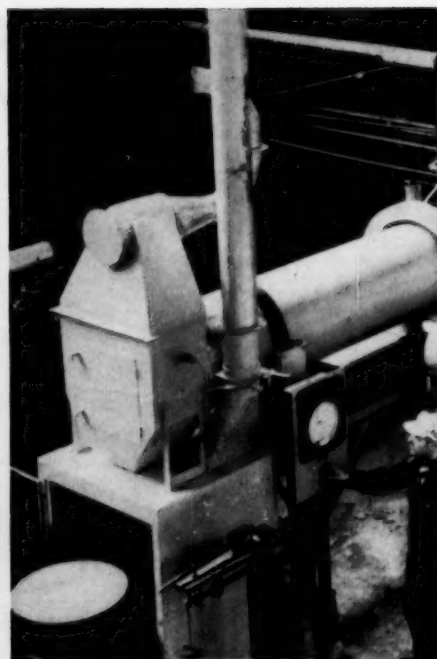
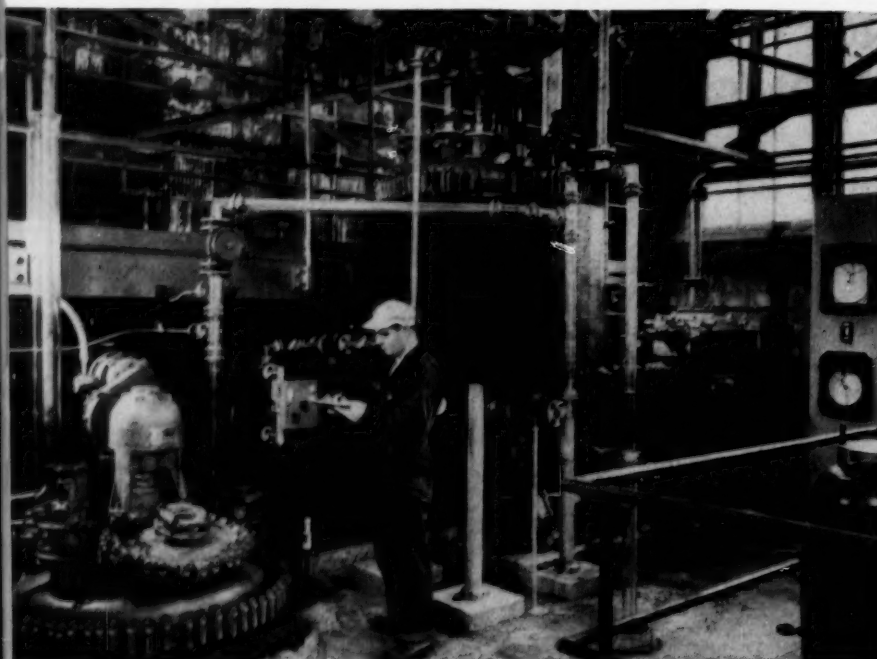
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PRODUCTION



AT WARNERS PLANT, new facilities include equipment for reactions (left), mixing, fractionation and drying (center)

Missing Link in Scale-Up Chain

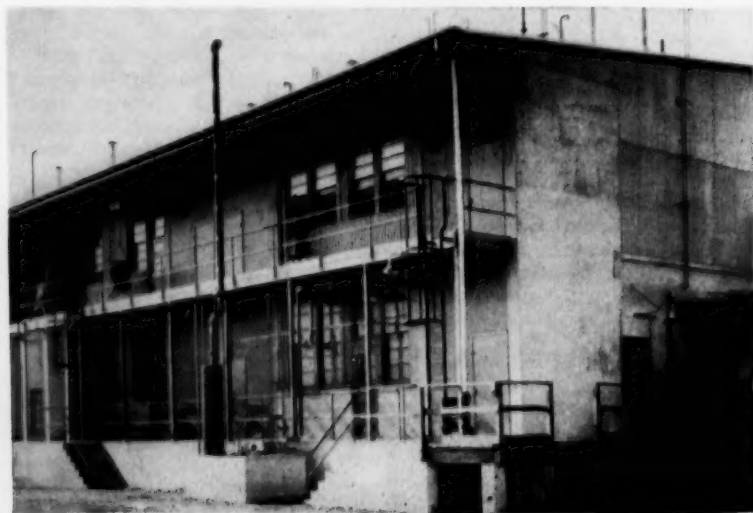
When looking for a leak in the gas main, you have a choice. You can go about it in a circumspect manner, or you can go straight to the root of the problem and light a match.

Unfortunately, the producer moving a new product along the line has no such choice. Sooner or later, he's got to light the match. That, at least is the conclusion reached by American

Cyanamid. This is how it arrived at it:

You move the product from the laboratory to the pilot plant. You learn about the process, get enough information to build a big plant. But you can't be sure of the market. So you start turning out semicommercial quantities in the pilot plant. You end up using it for a purpose for which it wasn't built and running it a lot longer than necessary. And very often you still haven't enough information to know whether or not a big plant is warranted. If you delay building the big plant, you're simply piling up developmental costs. If you go ahead with it and the product fizzes, you've found the leak with a lighted match.

Built to Be Flexible: The solution hit upon by Cyanamid is the installation pictured on these pages. Designed to bridge the gap between a pilot unit and a commercial plant, it was laid out with the idea of yielding a maximum of flexibility. It's not possible to rate such a plant by capacity, but it's closer to being a commercial plant than a pilot operation. Engineers feel, for instance, that running full tilt, they



OTHER NEW FACILITIES, at Bound Brook, take care of hydrogenations and other high-pressure reactions.



and right). To assure flexibility, most of it had to be oversized, had to draw heavily on corrosion-resistant materials.

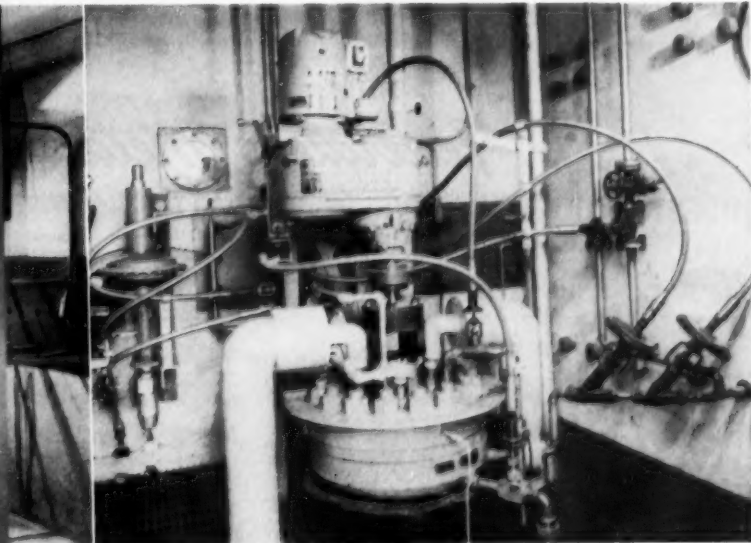
can turn out 3 million lbs./year of one of the products they're putting through its paces.

Other companies have gone through the same line of reasoning and arrived at substantially similar solutions. Cyanamid has merely brought the

problem into focus by setting up a special department to cope with it.

This department, by itself, won't make any money; about the best that can be expected is that it will break even. Cyanamid, however, feels it will shorten the traditional developmental

cycle of a new product, take some of management's risk out of the decision to build a commercial plant, and, in addition, provide valuable information in the design of a big plant. If it lives up to expectations, it should more than pay its way in the long run.



FROM CONTROL PANEL, operator (left) controls high-pressure installation (right), which is capable of withstanding pressures up to 2,000 psi.

FEDERATED ZINC DUST AS A REDUCING AGENT

Federated Zinc Dust offers these advantages:

- 1 Original cost is lower than most commonly used agents.
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PRODUCTION PROCESSES

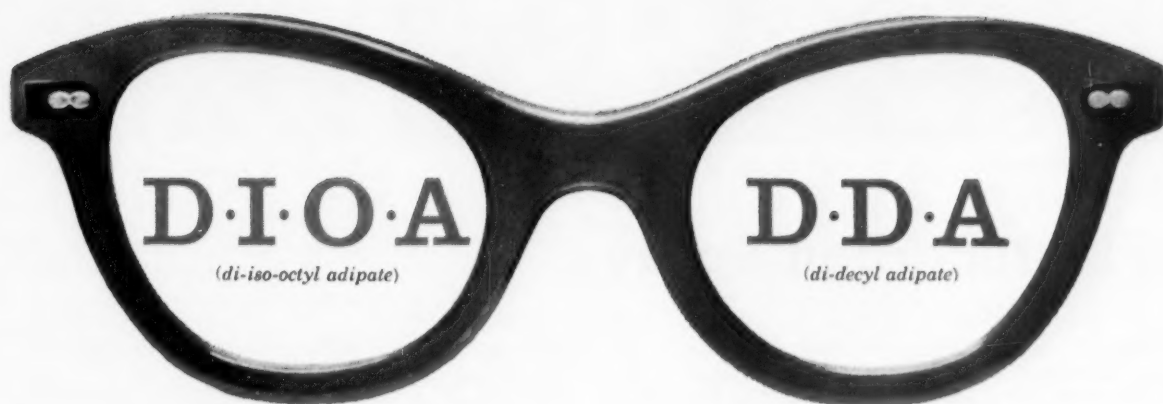
Sugar Extraction: A process of extracting sugar from cane by "continuous diffusion" has been developed by the National Cylinder Gas Co. (Chicago). Operating on an osmosis-dialysis principle, it is said to be the first basic innovation in cane processing in more than 100 years.

Heart of the process is a vertical cylindrical tower containing a rotating spiral device that moves sliced cane upward against a current of hot water entering at the top. Chief advantage of the diffusion extraction is the 97%-or-better recovery, high purity (2 to 3 points higher than pressure-milled cane) of sugar-bearing juice. Commercial-scale pilot-plant operation at the factory of the Fellsmere, Fla., Sugar Producers Assn. indicates that diffusion equipment is also more economical to build, install and operate, says NCG.

Refining Step-up: Some new processes of upgrading petroleum stocks to greater yields of high-octane gasoline are now available to refiners:

- Houdry Process Corp. (Philadelphia) is ready to license its Houdresid catalytic cracking process of making high octane gasoline and domestic furnace oil from heavy bottom residues. By overcoming the problem of catalyst poisoning resulting from heavy metal contaminants, Houdresid solves the knotty problems of disposing of bottoms, formerly of little value except in asphalt or bunker fuel oil. The process has been proved successful in commercial operation at Sun Oil Co.'s new refinery at Sarnia, Ontario, Canada, producing 64% gasoline from residuum representing 50% bottoms from a mixture of Texas, Louisiana, and Mid-Continent crudes.

- Universal Oil Products Co. (Des Plaines, Ill.) terms its Rexforming catalytic reforming process "an entirely new concept" in gasoline production. Aimed at raising the yield of fractions of more than 100 clear octane, Rexforming separates low-octane fractions flowing from the catalyst zone, recycles them until complete conversion is obtained. The process employs a platinum-containing catalyst, handles straight-run naphthas, straight-run or cracked stocks purified by Unifining, or mixtures.



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TEETERS AND DIPNER discuss new dispersions while . . .



. . . operator sprays it on equipment.

Fluorocarbon Spray

The corrosion engineer's arsenal is richer by two new weapons this week as the result of two new fluorocarbon dispersions being introduced by M. W. Kellogg.

Tagged Kel-F fluorocarbons NW-25-TR and N-2-TR, the new dispersions can be applied to a number of surfaces by spraying, dipping or spreading.

Temperature Key: The idea of a protective coating based on the fluorocarbons has always been inherently attractive to the man designing a chemical plant. The difficulty has been that spraying them has been a tricky job and the final coat has to be baked to fuse the coating to the surface. The baking operation tends to limit their application to smaller equipment. And in the case of Kel-F, the finished coat has deteriorated under the heat required for fusion.

Kellogg's development team, however, spearheaded by W. O. Teeters and Charles Dipner, continued wrestling with the problem, finally evolved

the new dispersions. They haven't overcome all the objections to fluorocarbons' use in protective coatings. But they have licked the thermal instability and feel that the usefulness of the materials will be broadened appreciably.

Putting the coat on still calls for careful control. Then the coat must be baked at 480 F for 18 hours or at 520 F for 10 hours. Finally, the coat may be quenched in water.

Recommended thickness for corrosion control is 10 mils, built up by 4 or 5 successive coats. For tougher jobs, however, the minimum thickness may be 15 or 20 mils. The cost of fluorocarbons and intricacies of the job mean that painting a piece of equipment with Kel-F will not be a cheap operation. Kellogg feels, however, that the finished item will be comparable cost-wise to rubber-lined or glass-lined equipment.

Different Approach: Kellogg, of course, isn't the only company to visualize the potential market for a

corrosion-resistant, protective coating based on fluorocarbons. Du Pont, too, is active in the field. Du Pont, however, takes a slightly different approach.

Whereas Kellogg will sell its new material directly to the ultimate user, Du Pont sells its Teflon fluorocarbon dispersions to custom applicators. (There are, at last count, 31 such firms that will spray Teflon). The fluorocarbon is sprayed and then baked. To extend the application to bigger pieces, the Teflon can be sprayed on a glass fabric and then the fabric made to adhere to the equipment.

The Teflon (like Kel-F) is suggested not only for corrosion control applications but also as an antisticking surface for process equipment.

Although many metals (including plain and stainless steel, nickel, silver and cadmium) can be coated satisfactorily with Kel-F, it is not recommended for some copper and aluminum alloys. Copper alloys oxidize, form a brittle oxide, which won't adhere to the basic metal surface at the temperatures necessary for fusion; and some of the aluminum alloys lose strength under the same conditions.

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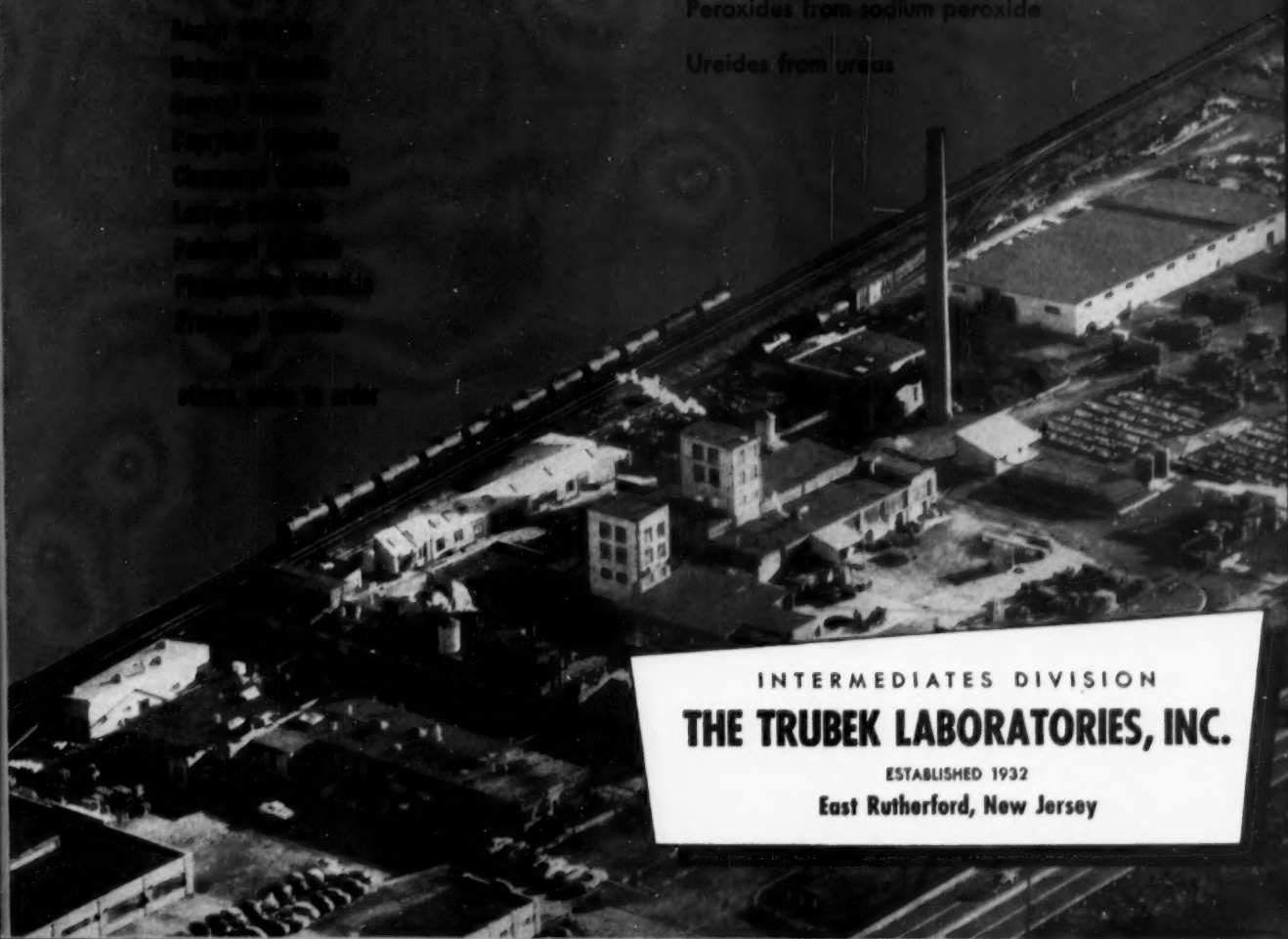
and
others, write to order

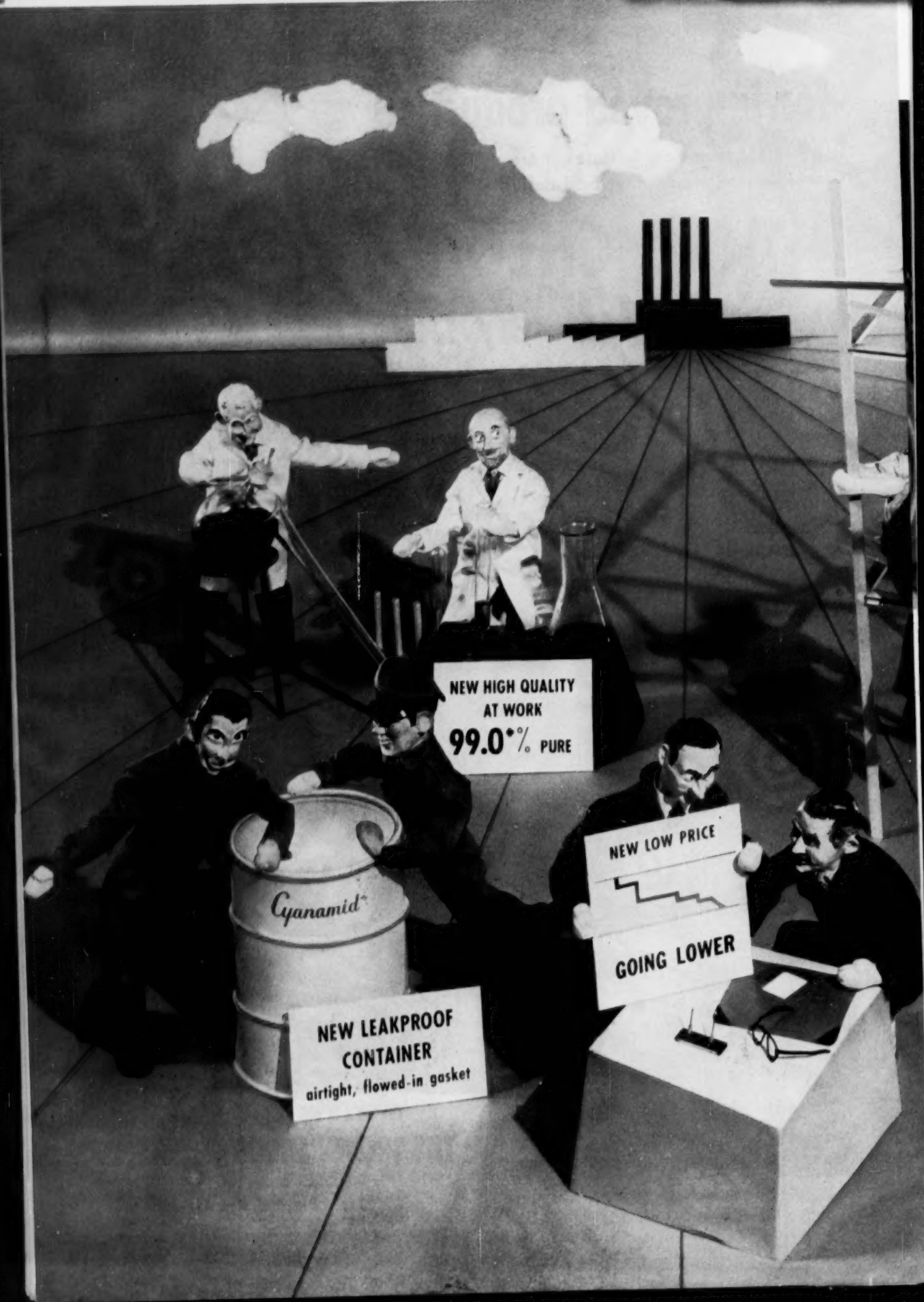
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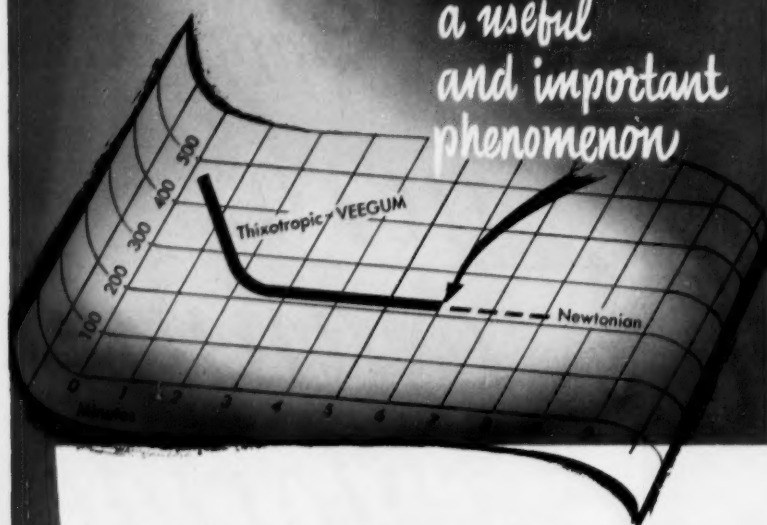
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PRODUCTION.

EQUIPMENT

Close Control: For precise metering of fluid micro flow rates, Research Appliance Co. (Pittsburgh, Pa.) now offers the Corson-Cerveney Micro-Bellows Pump equipped with new vernier scale micrometer setting. Three models are available with 1/2-, 3/4-, or 1-in. bellows covering flow rates ranging from 15-6,000 ml./hour.

Remote Indicators: Two new low-priced electric indicators have been developed by Taber Instrument Corp. (North Tonawanda, N. Y.) as companion instruments to its Teledyne pressure transmitters. The indicator units offer a choice of 3- or 7-in. scales, feature an advanced DC electric circuit that is claimed to eliminate phasing errors and minimize pickup voltages resulting from the use of long leads between transducer and indicator.

Diaphragm Valve: The Industrial Products Division of B. F. Goodrich Co. (Akron, O.) has just brought out a diaphragm valve, the first ever constructed of rigid Koroseal. Operating like a pinch clamp, the diaphragm isolates stem and metal parts from product stream, eliminates need for packing, special alloys. Straight-through design and absence of pockets or grooves makes the valve self-cleaning. They are available in six sizes from 1/2 to 2 in.

Pressure Valve: To provide greater operational safety in high-pressure processing equipment, Autoclave Engineers, Inc. (Erie, Pa.) has designed an improved 60,000-psi. valve. Special features contributing to the valve's greater safety factor: heavier sections for added strength, rounded threads and chamfered corners to minimize stress concentration, provisions to prevent interchange of parts with lower-pressure fittings.

Blending Control: Precision Scientific Co. (Chicago) has just been licensed by Standard Oil of Indiana to manufacture the Automatic Reid vapor pressure recorder. The instrument automatically records vapor pressures to 0.1 lb. for process control of gasoline blending, other operations that can be monitored by pressure readings. The Automatic Reid is said

11

ALL-IMPORTANT FACTORS WHICH DETERMINE THE VALUE AND EFFICIENCY OF PROCESSING FURNACES

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3. The combustion gases, at the top of the heater, are diverted towards the walls where they recirculate from the top of the heater downward, behind and between the tubes, increasing the heat input to the rear of the heating elements by convection;

4. The recirculated gases reduce the heat intensity at the bottom of the furnace so that the heat input is the same, top and bottom.

These factors provide the completely uniform heat distribution required in heaters for the most efficient process operation.

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for all processes and for any duty, pressure,
temperature and efficiency . . . and all
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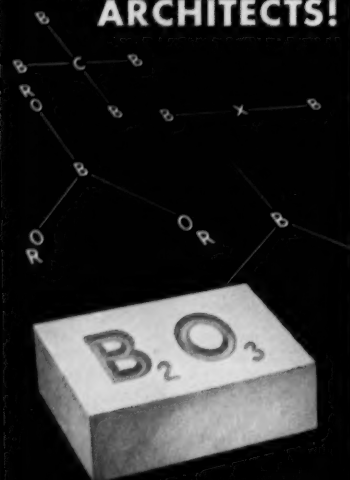
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PRODUCTION

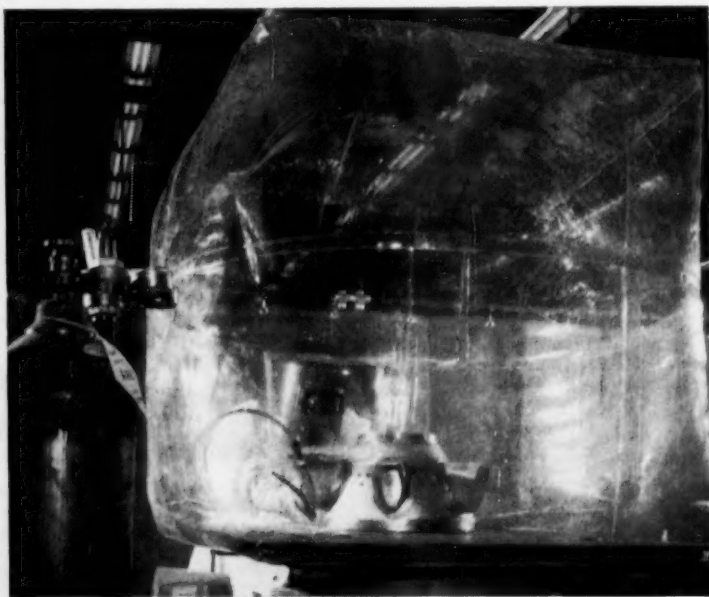
to reflect any change in vapor pressure within three minutes, stabilize at a new level within eight minutes.

Hydraulic Calculator: A new slide rule for computing capacities and pressures of products pipelines has been prepared by consulting engineer Frank E. Richardson, Shreveport, La. Based on the Williams and Hazen formula for water flow, the rule scaling has been adapted for the specific gravity of gasoline, incorporates a viscosity factor for converting the friction factor to correspond to the kinetic viscosity of the product being pumped.

Particle Sizer: The Edscorp Geological Sand-Measuring Magnifier was developed by Edmund Scientific Corp. (Barrington, N.J.) as an aid to analysis of soil, sand, and other small particles. The instrument employs an

etched glass reticle superimposed on the specimen and magnified six times by a corrected lens system. The reticle features a grid scale to facilitate counting particles, shows upper and lower limits of various grain sizes as prescribed by most common industrial standards.

Remote Control: Transmission of telemetering and control signals is said to be greatly simplified by the Synchro-Scan multi-function supervisory control system now offered by Builders-Providence, Inc. (Providence, R.I.). The equipment reduces transmission line requirements, uses only a single pair of signal wires to control any combination of pumps, valves, gates, etc., at remote locations. System is easily expanded with plug-in units, transmits on audio tone channels, modulated carrier frequencies, and microwave links as well as over wires.



Built Up in the Bag

FOR A TITANIUM WELDER, keeping the air out is no less important than is keeping germs out for a worker in a drug plant. So Solar Aircraft borrowed some pharmaceutical techniques for its new titanium fusion-welding method.

The welder above is working inside a gas-tight vinyl tent filled with an inert atmosphere, using rubber gloves, which are sealed to the tent. The method has proved successful, says Solar, in keeping out air.

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BALLOONS AT BANGKOK: They lure fairgoers to U.S. way of life.

International Barnstorming

Want to sell abroad? The U.S. Commerce Dept. is all set to show you how trade fairs can help.

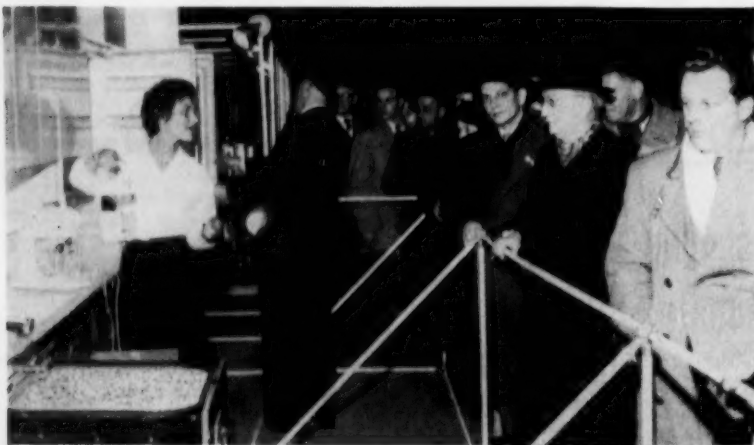
A five-pronged government program—trade booths, central exhibits, prebriefing, assistance, information service—begins to muster chemical industry support.

Every chemical export manager knows that foreign business gets tougher and tougher to get; just take a look at Latin America, for instance (see CW, Jan. 29, p. 38). There, revitalized European producers have cut sharply into U.S. chemical volume. So it's small wonder that chemical businessmen are showing spirited interest in the U.S. Dept. of Commerce's glossy new, \$5-million international trade fair program, now

roaring into high gear.

This May, for the first time since the program's inception, a host of major chemical companies will participate directly in one such fair. The locale: Tokyo; the activity: displays of company products in the main U.S. exhibit, "Partners in Progress."*

* A huge map of Japan, pinpointing locations of licensees and distributors, will be one feature. The theme stresses how U.S. companies and Japanese firms work together to raise Nipponese living standards.



FURNISHINGS AT FRANKFORT: They spark demand for U.S. wares.

DISTRIBUTION

The chemical roll-call at Tokyo will include Du Pont, International Chemical, Union Carbide, Pfizer, Merck, and Parke, Davis. Others—like Olin Mathieson and Monsanto—are seriously pondering exhibiting at future fairs. And many a firm not directly represented will have its local branch or distributor carry the company banner.

Motive: A yen for higher export sales, of course, is the reason why the chemical industry is zestfully swinging behind the scheme. Trade fairs have been a traditional merchandising method abroad—and a successful one. But U.S. industry, chemicals included, has largely ignored these sales jamborees.

Chemical specialty producers especially, Commerce Dept. officials believe, can reap profits from foreign fairs. Any product that hikes home, farm, or industry efficiency will sell (detergents, weatherproofers, plastics, insecticides, synthetic textiles—to name a few).

Sales isn't Commerce's only motive, however. National prestige is also a reason. Company and government displays dramatize the advantages of a free enterprise economy and the American way of life to millions of visitors (fairs are open to the general public as well as to businessmen). Russia has long exploited fairs for propaganda purposes.

To help U.S. firms boost foreign sales and national prestige, the government has embarked on an overseas exhibit program. Here is what the plan is and how you can cash in on it:

- **Information center.** First step is to contact the Commerce Dept.'s trade fair information center in Washington. This office furnishes data on fair dates and locations, suitable types of exhibits, costs, how to place products in the main U.S. display, and other details.

- **Principal exhibits.** Each fair has a main U.S. exhibit containing U.S.-made products. Products in the central display are donated or loaned to the government, which pays the round-trip freight bill between the seaboard and the fair. (On individual exhibits, however, the firm foots the bill.)

- **Free advice and assistance.** Dept. of Commerce trade fair representatives will make rental arrangements, help with shipping, provide a designer (for the main exhibit only),



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DISTRIBUTION

Foreign Trade Fairs

April 12-27, Milan
April 16-25, Lyons
April 23-May 8, Brussels
April 24-May 3, Liege
May 1-20, Valencia
May 2-13, London
May 5-18, Tokyo
May 14-30, Paris
May 25-June 10, Palermo
June 1-20, Barcelona

line up interpreters.

• Brief possible contacts. Before the fair, overseas-located Commerce marketing and trade specialists will cue foreign businessmen on specific trade opportunities with the U.S.

• Fair trade centers. Object here: to encourage contact between U.S. and foreign businessmen. These centers will be staffed by consultants, will counsel on exporting, importing, li-

censing, customs procedures, and tariffs. Names, addresses, products, and business interests can be registered and directories will list U.S. companies sharing in the main federal display. These "get-together" centers are probably the most important activity in the department's fair plan.

More to Come: New to foreign sales fairs, most chemical companies are moving measuredly, plan participation in only the main federal exhibits right now. At Brussels, however, Carbide will and Du Pont may have shows of their own. Individual shows, desirable as they are, pose two big problems: choice of products from a diversified line; obtaining a qualified exhibit staff to answer questions.

Meanwhile, Commerce Secretary Weeks will fly to Europe for one solid month of trade-fairing. Back home, Commerce will seek funds for the second half of '55 to sell U.S. wares and culture to the Middle East, Southeast Asia, Latin America.



First Delivery to Dutch Dow

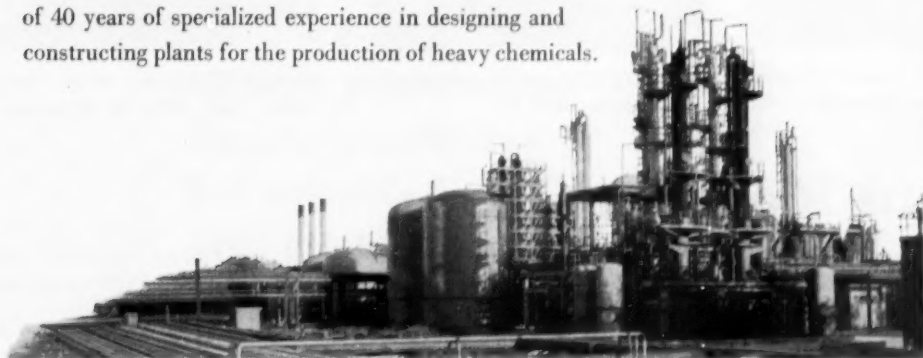
STANDING BERTHED at Waalhaven, Rotterdam harbor, is Dow Chemical's leased tanker, the *Marine Chemist*, having just completed its first delivery of bulk liquid and dry chemicals to the company's new Dutch subsidiary (CW,

Feb. 5, p. 82). Formed only a little over a month ago, the new company is now leasing tank storage and warehouse facilities at Rotterdam, plans to build on a 50-acre tract in the Third Petroleum Harbor in that city.



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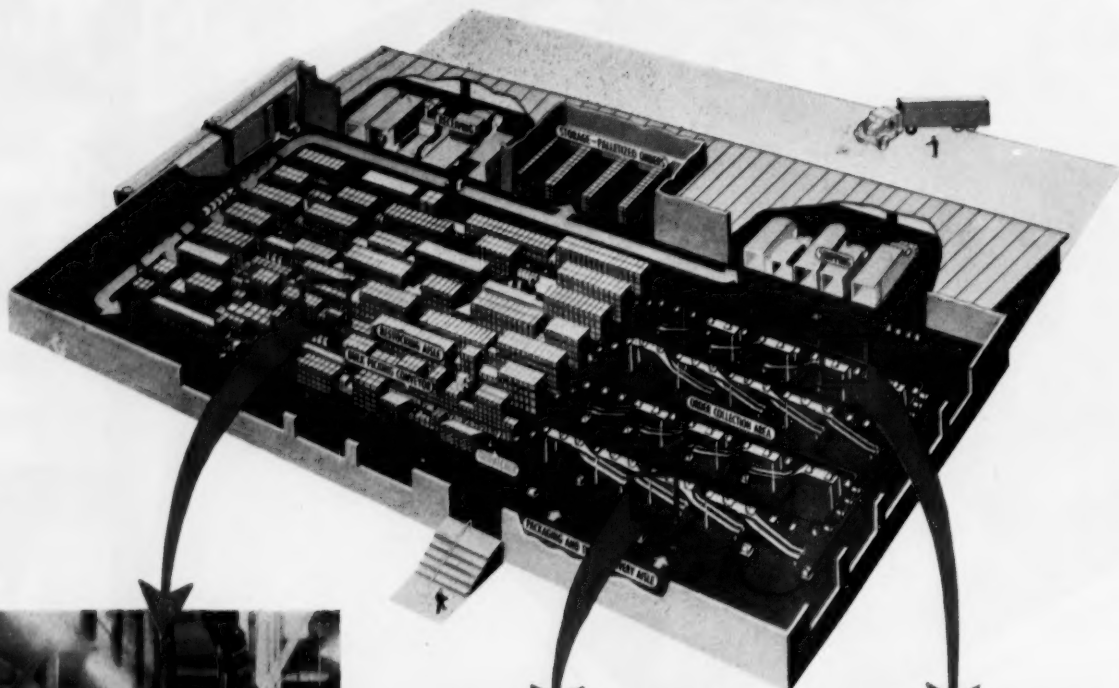
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Cable Address: Chemiconst, New York • Technical Representatives: Cyanamid Products Ltd, London
South African Cyanamid (Pty) Ltd., Johannesburg

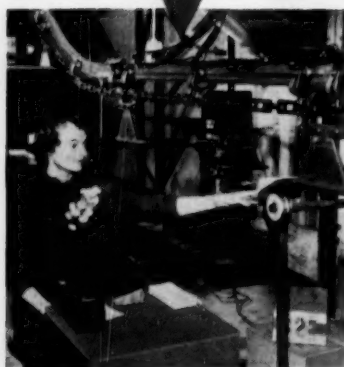
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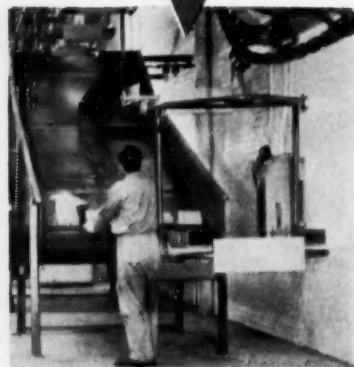
Control-Engineered Warehouse



PICKER transfers goods to automated trolley conveyor going to . . .



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PACKING chute where roving crews ready order for shipment.

Electrons Move the Goods

Segment by segment the chemical industries are as efficient as the best. But despite adoption of such cost-cutters as electronic systems and instrumentation in production, research, and even sales order writing, some corporate practices still lumber along. Take warehousing for example. Materials-handling engineers have done what they can, but chemical warehousing operations still remain, for

the most part, as expensive and unmechanized.

Now, however, electronics are moving in. At the Colmar, Pa. plant of the Link-Belt Co. last week, officials of Link-Belt, Teleregister Corp., and Walter Kidde Constructors, Inc. unveiled the prototype* of an electronic

* Kidde designed the system, Teleregister supplied the automation analogue, and Link-Belt made the conveyors, chutes, and other mechanical equipment.

warehousing set-up that features picking of all identical items at the same time, sorting on the conveyor.

In the chemical industry, Kidde has sighted these targets: pharmaceuticals, dyestuffs, and specialties. Kidde claims these advantages:

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Here's how the system works:

Mass picking: Each item on an order is coded to individual punch cards which are then sorted (mechanically) by storage sequence. At each item storage site, a touring picker fills all orders for a particular product, places the punch card with the item on a conveyor, then moves on to the next item category. Alternate picking and stocking aisles (both conveyor equipped) service the storage area.

Order collections: Electronics now takes over conveyor control. The merchandise passes a dispatch point where cards are electronically or manually read, chuted automatically to a packing area assigned to each buyer. Chutes store the articles until roving workers pack the shipment. Electric eyes or a hand-operated reject control can funnel mischosen or misdispatched goods into an error chute. Right now, electronic warehousing ends with the shipment. But it's likely that the system will be tied to integrated data processing (*see CW, Aug. 28, '54, p. 56*). The result: virtually automatic billing, invoicing, inventory control and sales analysis.

But this kind of storage and shipping has a price, and it's high. On one comparative study, instrumented machinery alone would bill at \$600,000. But this could be balanced against 12% lower building cost and annual payroll savings of \$408,000. (In the conventional warehouse, 220 pickers traveled several million feet per day. The new method would require only 102 pickers to journey some 10,000 ft. per day.)

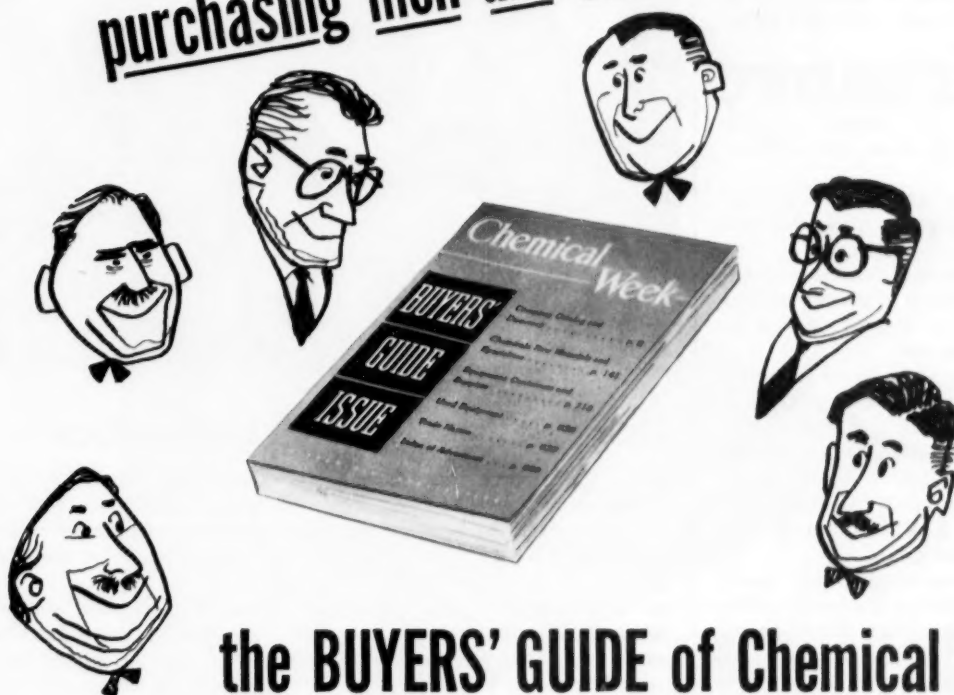
How soon automated warehousing will become reality is hard to say. But there's no gainsaying that the Kidde, or some other, system will—sooner or later—nudge into high-labor-cost warehousing.

Transport Secrets Out

Pres. Eisenhower's Cabinet committee on transport policy and organization is now four months overdue with its expected report on national transportation problems.

This week, the reason for the long delay became apparent—the committee, headed by Commerce Sec'y Sinclair Weeks, is bogged down in dis-

purchasing men are talking about...



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Evans Research & Development Corp.*

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pute over some recommendations that would drastically alter basic patterns of national transport. Generally, what Weeks has tried to "sell" the White House and the Cabinet has consisted of economic relief for the railroads, at the expense of truck, airline and waterway operators.

A draft of the Weeks committee's report, reputedly kicked back by the White House in February, came to light with these basic recommendations:

- Railroads should be allowed freely to engage in truck, bus and other transport operations.

- The Interstate Commerce Commission's authority to control railroad rates, either up or down, should be virtually eliminated.

- Tolls should be levied on all inland waterways which have been or will be improved by the government.

- The long- and short-haul clause should be repealed. As it now stands, railroads are prohibited from charging lower rates on long hauls than on those to intermediate points.

- Exemptions which permit trucks to haul agricultural raw commodities free of ICC regulation should be repealed.

- Trip-leasing, another device which enables many private contract truck operators to stay outside ICC regulation, should be abolished.

- Repeal is urged of the 3% freight transportation tax and the 10% excise on travel tickets.

- Airline subsidies should be tightened up and eliminated at the earliest possible time.

- Right of the government to bargain for preferential freight rates—i.e., "play off" trucks against railroads—should be repealed.

One of Weeks' confidants deplored publication of details from the February draft—"It's completely out-of-date now." This tended to support other reports that the Weeks committee now is trying to water down these red-hot proposals and finally come out with recommendations that originally were to be delivered to the White House last Dec. 1.

Truck, waterway and airline industry watchdogs in Washington saw in this week's news leaks confirmation of their dark suspicions—that the Weeks committee would come up with heavily pro-railroad recommendations. But at this point they professed not to be particularly fearful, primarily for two



Designed to Please—in Plastics

WRAP-UP of Koppers' commercial design contest (CW, Oct. 23, '54, p. 107) took place in Pittsburgh a few days ago. At a winner-honoring banquet, top awards for correct design and proper application of plastics in consumer products* were conferred on molders competing in three classes.

The contest classifications, winners and entries (see bottom cut):

ners and entries (see bottom cut):

- Utilitarian product with operative construction. Federal Tool Co. (Chicago)—2-color drop-door breadbox.

- Utilitarian product, nonoperative construction. Burroughs Manufacturing Corp. (Los Angeles)—18-piece, 2-color dinnerware set.

- Decorative product. Injection Plastic Corp. (Skokie, Ill.)—high-gloss, rectangular shelf planter.



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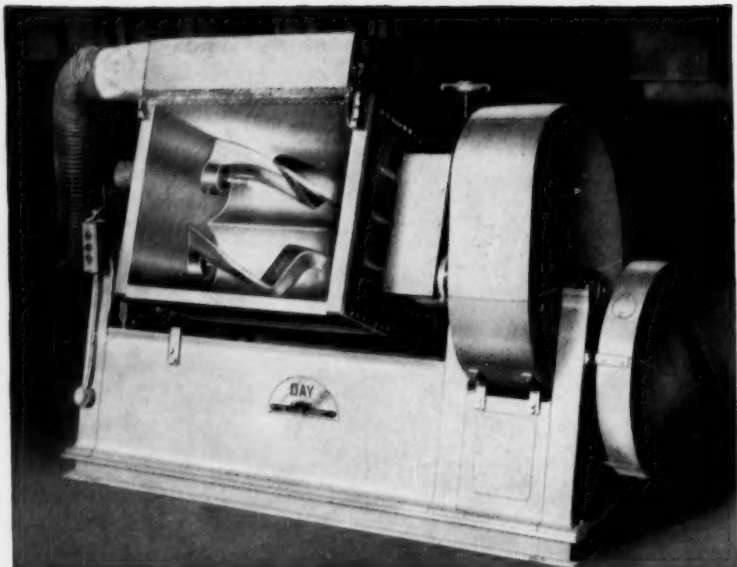
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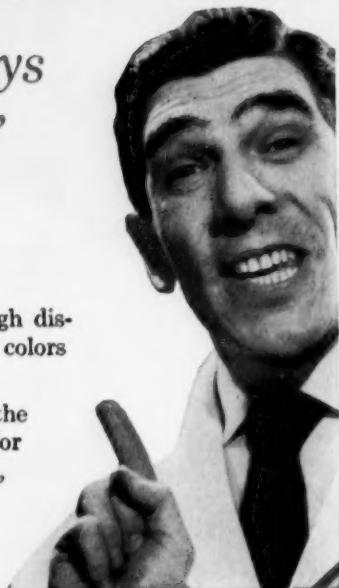


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WEEKS: The first draft may need watering to become palatable.

reasons—one, the White House has already balked at accepting first drafts of the report; and two, the four-month delay has virtually killed any chance that Pres. Eisenhower could do anything with them in this Congress, even if he wanted to.

The ICC and the Civil Aeronautics Board, two targets of the Weeks group, are independent agencies, accountable directly to Congress rather than to the White House. Any move to clip their powers or to move them under an executive wing would be resisted strongly on Capitol Hill.

Despite this week's developments, the question still is to be answered: "When will the report come out?" Answers vary from "soon" to "late April" to "May" and "never, maybe."

Sen. George A. Smathers (D., Fla.) is chairman of a Senate commerce subcommittee on surface transportation which at hearings—tentatively scheduled to begin sometime in April—will try to smoke out Weeks on some of the major issues at stake. One thing is certain: if Weeks or the Administration proposes basic transport revisions anywhere near the lines suggested in the February draft, it will touch off an angry battle on Capitol Hill.

Barges Not Taxable? Ohio River barge line operators may not have to pay the franchise tax instituted by the Ohio Legislature last year. A circuit judge issued a restrainer because several companies challenge the constitutionality of the act.

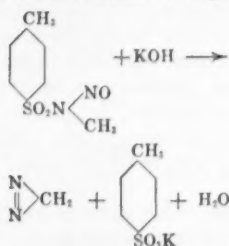
...AMONG SOME 3500 ORGANICS

The elegant methylator

When diazomethane, a yellow, toxic, and explosive gas, does a methylating job, the only by-product is inert, equally gaseous nitrogen. The progress of the methylation is revealed by the fading of the color. When it's done, any excess diazomethane can be driven off with a little warmth.

Elegant as a methylating agent it is, but in practicality it has been wanting. Not only is the diazomethane itself too unstable to keep around for any length of time, but even its various prescribed progenitors are unstable at room temperatures. Retreating another step to prepare fresh starting material, such as nitroso-methylurea, makes the job so much of a production that it has generally been wiser to think of something less elegant than diazomethane.

Now from Groningen, where phase microscopy was invented, comes a solution to this problem too. At that venerable Dutch seat of learning it has been found that a certain sulfonylnitrosamide, first mentioned in a long-expired German patent, may be reacted with potassium hydroxide to generate diazomethane as a gas. So:



Or it may be prepared as an ethereal solution, with or without alcohol. This nitrosamide can be kept for years at room temperature in a dark bottle. We are further told that it does not seem to irritate the skin the way some other nitroso compounds do.

One of the gentlemen who lifted the compound from its obscurity has been kind enough to write and ask whether we would be interested in putting it on the market. We certainly are. We call it *N-Methyl-N-nitroso-p-toluenesulfonamide* (Eastman 7066) and price it at \$2.15 for 10 grams. We have written him that if his idea catches on we might be able to lower the price, though we doubt anybody will ever get rich methylating anything with diazomethane. Abstracts of the generation procedure on request. Of perhaps more limited interest is a synthesis of cycloheptanone with *N-Methyl-N-nitroso-p-toluenesulfonamide*. This is to be found on page 24 of the new Volume 34 of *Organic Syntheses*.*

Footnote on pK 9.9

No buffer buffers any better than any other buffer. The shape of the curve of pH vs. added acid or alkali is the same for all of them, differing only in position. You find the one with the pK value closest to the pH you wish to maintain, and as long as there are enough buffer molecules in your medium to take up excess protons, or conversely, enough buffer ions to contribute protons to the medium, pH stability prevails.

We note a footnote on page 20 of *The Journal of Biological Chemistry*, 207 (March '54) which states that our *2-Amino-2-methyl-1-propanol* (Eastman P 4780) has been found superior to glycine as a buffer for alkaline phosphatase. With a pK of 9.9, it is reported not to inhibit alkaline phosphatase even in 1 M concentration. The authors relate their finding of about twice the enzyme activity with this buffer as with glycine, then go on to say, "and also a far better buffered medium is possible."

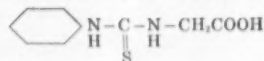
**Organic Syntheses* calls the compound *p-tolylsulfonylmethylnitrosamide*.

We would pettefog to the extent of rewording the thought to "a buffered medium that is far better is possible." We appreciate the compliment in any event, even though *2-Amino-2-methyl-1-propanol*, a Practical Grade Eastman Organic Chemical, costs only \$2.15 for 500 grams while we get \$1.25 for 100 grams of *Glycine (Ammonia-Free)* (Eastman 445).

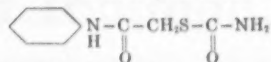
The strange and wonderful aspects of the analytical reagents business

Eastman Organic Chemical No. 734 has been successfully used during the past 35 years for the determination of cobalt and copper.

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Accordingly we have renamed it *α-Mercaptoacetanilide Carbamate*. We shall still be happy to supply abstracts of the analytical procedures employing it.

Things like this will happen once in a while, and there's nothing to be gained by pretending they won't.

Glad we've straightened that out. These are only a few of some 3500 organic compounds we try to keep track of and on hand for the needs of the world's laboratories. Current *List No. 39* may be obtained free of charge from *Distillation Products Industries*, Eastman Organic Chemicals Department, Rochester 3, N. Y.

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SOIL TESTING'S GNAEDINGERS: For 20 ft. below water level, a . . .

Chemical Tide Stemmer

Products to alter the characteristics of the earth have an understandable fascination for chemical development men. But experience has shown that it's one thing to contemplate a vast terrestrial market for chemicals and quite another to lend substance to this vision. That truth was reaffirmed this week as results of research with American Cyanamid's new AM-955* soil stabilizer were revealed in Cincinnati.†

Two independent probes of the value of the material—a mixture of acrylamide and N,N'-methylenebisacrylamide—have yielded contrasting pictures of its effectiveness. The net result, however, is a hopeful outlook for the product in civil engineering applications.

Home and garden specialty uses, on the other hand, are not likely to play a part in AM-955's future—despite the acrylic's ability to prevent seepage of water in concrete basements.

* Not to be confused with the company's Aero-till sodium polyacrylate stabilizer.

† At the 127th national meeting of American Chemical Society.

Soil Testing Services, a Chicago engineering firm, reveals that the preparation was successful in stopping the leakage of ground water into the lower level of a large bus terminal in downtown Chicago. The floor of the structure is about 20 ft. below the water level in the nearby Chicago River. According to the company's John Gnaedinger, who was aided in this work by his engineer father, seepage ceased soon after application. A large damp concrete boiler room was also sealed with AM-955.

Both jobs were accomplished by a civil engineering technique known as grouting. What happens, briefly, is this: an aqueous solution of the acrylic mixture, containing catalyst and activator, is injected through small holes drilled in the concrete floor, spreads out under the floor and around buried walls. The chemicals polymerize in the soil, forming a cohesive, relatively impervious shell around the subsurface structure. Polymerization usually occurs within 20 minutes but may be retarded up to 24 hours in cold ground.

Two pitfalls must be avoided: metals accelerate polymerization of the acrylic monomers, are taboo for pipes, mixing drums, etc., in which the preparation may be allowed to remain for any length of time; large water-containing cavities allow the monomers to disperse before polymerizing, seriously complicate the stabilization of soils in which they occur. The latter problem is now under attack by Soil Testing Services.

AM-955's biggest limitation, in jobs of this kind, is cost. This, in the light of the large quantities of chemicals involved, can rule the product out of applications in which its effectiveness is a foregone conclusion.

Costs and Cavities: Cost, of course, varies with size of the project, soil conditions, accessibility of working area, etc. But, as a rough estimate, Gnaedinger pegs job costs at about \$2-6/sq. ft. or \$50-150/injection hole. The chemicals, alone, sell for 60¢/lb. in drums (f.o.b. Warner's, N.J.); car-load lots have not yet been delivered.

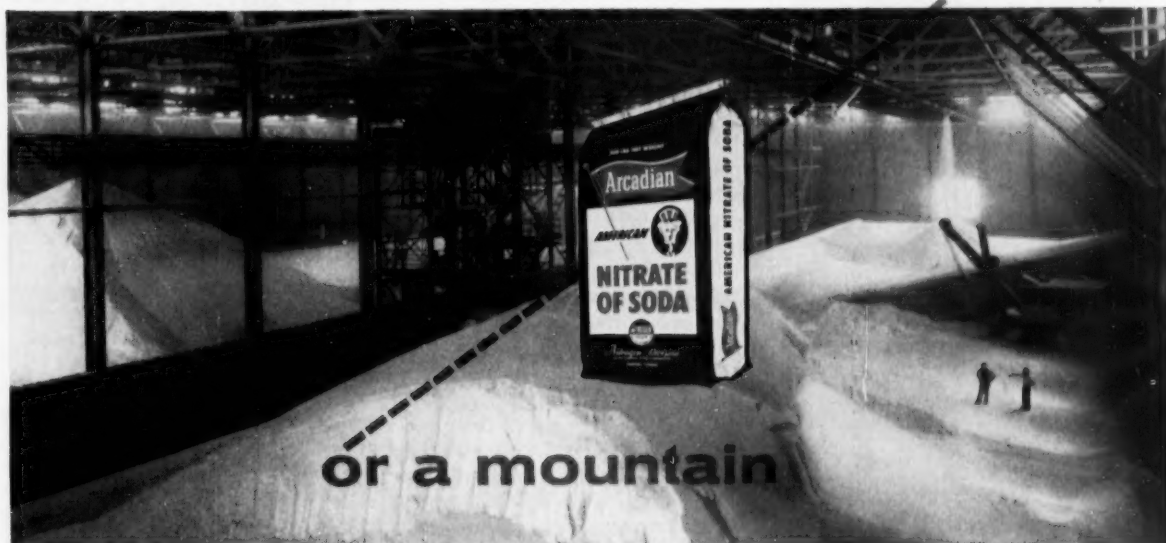
Moistureproofing appears to be AM-955's principal bid for commercial utilization. The acrylic combination does not significantly increase the load-bearing ability of soils, although its performance in this (and other departments) may be modified by mixing with other stabilizing agents (e.g., calcium acrylate). Incorporation of calcium acrylate, for instance, makes for greater strength and resilience of treated soil, but boosts cost by about 50%.

Either alone, or in conjunction with other chemical stabilizers, AM-955 will be aiming for a covey of high-volume engineering uses. As a leak-stopper, it is being considered for service in the prevention of seepage beneath dam foundations, into oil wells and tunnels. By virtue of its ability to increase the cohesiveness of fine soils, the agent could facilitate tunneling operations in sand and silt.

At this point, these are only good possibilities. Another likely looking use for AM-955—sealing the walls of irrigation canals—proves that it's risky to take anything for granted in soil-stabilizer development.

U.S. Dept. of Agriculture's irrigation research laboratory at Logan, Utah, was interested in using the agent for preparing stabilized-earth canal-

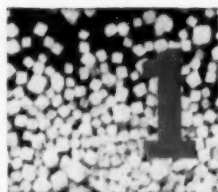
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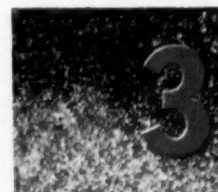
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RESEARCH

linings that would prevent the leakage of water into the canal bed.*

Soil Scientist Cyril Lauritzen of the Logan laboratory investigated the possibility of using the stabilizer solution as a spray, obtained negative results. He was able to get a relatively impervious coat by mixing earth with a solution of the stabilizer containing small amounts (0.05%) of ammonium persulfate (catalyst) and sodium thiosulfate (activator).

Direct Approach: In practice, this pasty mass would be daubed on the floor and walls of irrigation canals. But soils stabilized with this formulation were found to shrink appreciably upon setting, form large cracks that permit the escape of water. To get around the shrinkage problem, Lauritzen upped catalyst and activator concentration, tried direct application of the resulting solution.

He reveals that four test linings were prepared, two of which were fairly effective in controlling seepage but subject to cracking; the others proved ineffective in stopping seepage. His conclusion: a fairly satisfactory lining might be constructed, but this has yet to be demonstrated.

Such information is going into Cyanamid's campaign to develop AM-955 on a realistic basis. The company has its sights set squarely on the kind of water-control jobs outlined by Gnaedinger, is excluding load-bearing applications from its plans for the product.

This signifies that the acrylic combination will not be competition for stabilizers (e.g., aniline-furfural and calcium acrylate) that are used to put a load-bearing surface (road, etc.) on soggy earth.

In any event, toxicity is a potential headache. The acrylamides exhibit considerable contact toxicity, will require special handling and packaging methods. Potential customers, moreover, must be convinced of the need for precautions and, in the final analysis, the job of educating the user rests with company.

Toxicity is one reason why AM-955 will not be available in 5-lb. packages as a do-it-yourself basement sealer. But Cyanamid figures the professional trade is incentive enough for the development effort.

* USDA estimates that one-third of all water diverted for irrigation purposes is lost by seepage into the canal bed. Lining the canal with earth, asphalt, or concrete is one way to cut this loss.

New Basis for Judgment

Determining how much to spend on a research project takes experience and intuition. But several new mathematical approaches to this problem may soon give research management something tangible to work with.

One formula, intended only for use in new product development, is the brain child of Ralph Manley, laboratories director of General Mills. Manley's equation aims to tell the maximum amount a company should spend on this activity, takes account of plant investment (P), working capital (W), research and development cost before taxes (R), nontax-deductible fraction of research and development cost (r), recoupment period (Y), sales volume (S), and minimum acceptable net profits after taxes (N), as a percent of sales.

These are related as follows: R is equal to or less than $(YSN-P-W)/r$.

Manley points out that his handiwork is of no value in budgeting fundamental research or product-improvement studies, makes no allowance for projects that fail. Still under study, the equation is nevertheless a pioneering step toward a limited objective in research management.

Another yardstick for estimating the worth of projects incorporates an "estimated index of return" based on savings from process improvements, a percent of revenue from the sale of new or improved products. According to Fred Olsen, vice-president for research of Olin Mathieson, this index is inserted in the ratio: estimated index of return \times probability of success \div estimated cost of research.

Based on experience, states Olsen, the result should exceed 3 or the project is a poor prospect for further research. If, for example, the estimated index of return on a hypothetical new product is \$1 million, and the probability of success is 1 in 3, Olsen's equation gives \$100,000 as the maximum expenditure for that project.

This method, too, has some obvious shortcomings. But the men* who are probing mathematical aids to research planning are under no illusion that mathematics can ever substitute for judgment. At best, they hope to provide a sounder basis for arriving at spending judgments.

* Including Battelle's Clyde Williams and Standard Oil of Indiana's research director, M. T. Carpenter.



From the rocks of **Les Baux**

Back in 1821, Pierre Berthier of the French Royal Corps of Mines, according to legend, was strolling in the hills around the village of Les Baux (Bouches du Rhone), France. His companion stained her white dress with material from the surrounding rocks.

Upon learning the young lady was having difficulty removing the stain, Berthier collected samples of the rocks of Les Baux. When he analyzed the ore he found it contained 52.0% alumina, 27.6% ferric oxide, and 20.4% combined water. This was the first official recognition given to the deposit. Later, the ore was named "Bauxite" from its association with the near-by village of Les Baux.

Since this discovery, other deposits of bauxite have been found in several parts of the world. In addition to being the basic raw material of the world's aluminum industry today, bauxite is also an important raw material used by the chemical industry and for the production of abrasives, refractories and ceramics.

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Attention Department A

RESEARCH

Time Running Out

Government officials who issue certificates of necessity for expansion of chemical facilities were surprised this week to discover how few chemical companies have applied for rapid tax write-offs on research and development laboratories.

A formal expansion goal covering such construction first went on the books in Feb. 1953, and a year later was expanded to cover a broader range of laboratories. But companies do not have much more time to take advantage of this opportunity.

So far, 30 certificates (*see table, p. 76*) have gone to chemical companies, covering research and development activities of two types: (1) studies with direct relation to defense research and development, and (2) work on commodities for which the government has had formal expansion goals.

As now constituted, the R&D expansion goal can be used for construction of facilities to be completed by Jan. 1, 1956. This effectively bars new applications from companies that are just starting to plan such buildings. But if your company is in an advanced planning stage on a new lab, it would be worthwhile to apply.

With such certification, up to 70% of the laboratory cost may be written off over five years, and the remaining costs may be amortized at above-normal rates, under the provisions of the 1954 Internal Revenue Code.

The prime criterion established by the Chemical and Rubber Division of BDSA, which recommends almost all chemical R&D certificates, is that the research in question have some bearing on defense applications. A laboratory stated to be for "plastics research" might be considered ineligible; while another for use in efforts to improve the scuffing and craze resistance of acrylic plastics would be eligible.

An example of a laboratory certificate denied at this time is found in the application of Parke, Davis, which planned a facility for evaluating antibiotics. Such application was not related, specifically enough, to defense.

There have been three stages in the issuing of R&D certificates. The earliest issued were granted on a one-of-a-kind basis. Issuance was difficult, since it depended on specific and detailed justification.

Second stage came with the formal issuance of an R&D laboratory goal on Feb. 27, 1953. Since that time it has been possible to receive write-offs on laboratories having defense research and development contracts that the contracting agency determines cannot be met without facility expansion.

Final stage—during which the predominant part of chemical certificates was issued—began Feb. 15, 1954, when the expansion goal was amended to include, as well, research laboratories to conduct activities in the interest of the national defense program, and those covering R&D connected with a commodity expansion goal.

No Pattern: Largely because of liberalization of the rules governing the granting of R&D certificates, tax aid in this area gives a scattershot appearance.

No definite pattern of commodities or operations is obvious from the list of certificates granted. They cover facilities for plastics, metals, petroleum and organic chemical studies, to cite a few cases. Both laboratories and pilot plants are included.

A check of recipients, moreover, reveals that certificates have been put to use and, in most cases, the facilities concerned have been completed or are nearing completion.

Ethyl Corp., for example, is proceeding full throttle on the structures cited in the three certificates granted to it during the past year. Included is a two-story addition to engineering facilities at Baton Rouge, La., and new wings for the company's Detroit (Ferndale, Mich.) research center. Both of these should be ready this year. The third expansion—a controlled-weather automotive testing chamber—is nearly completed.

Monsanto, a four-certificate holder, has almost completed new laboratories at Nitro, W. Va., Springfield, Mass., and St. Louis, Mo.; a second St. Louis project (T.A. No. 28449)—remodeling of organic research quarters at the Queeny plant—is about half completed.

Allied Chemical's certified expansions at Morristown, N. J., Hopewell, Va., and Buffalo, N. Y., all are completed. Other firms tell essentially the same story as these three.



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ODM AIDS RESEARCH BUILDUP

Here's the tally of chemical research and development certificates handled by the Office of Defense Mobilization:

GRANTED		Amount Received (\$1,000s)		%	T. A.	Date
Company & Location			Asked	Write-off	Number	Granted
Hazelton Laboratories, Vienna, Va.		10	...	45	9,928	8/18/52
Wyandotte Chemical, Wyandotte, Mich.		2,750	...	25	10,897	4/30/52
A. D. Little, Cambridge, Mass.		35	...	70	13,694	3/19/53
U. S. Testing, Hoboken, N. J.		4	...	45	14,421	2/21/52
Ferro Spec. Labs, Inc., Los Angeles		1	11	65	17,994	7/ 2/52
Ferro Spec. Labs, Inc., Los Angeles		7	...	65	17,995	7/ 2/52
Allied Chem. & Dye, Morristown, N. J.		1,926	2,400	40	18,334	4/21/52
Vitro Corp. of Amer., W. Orange, N. J.		262	298	50	19,111	2/18/53
Union Carbide, Niagara Falls, N. Y.		1,957	...	50	20,694	11/ 2/54
National Gypsum, Tonawanda, N. Y.		943	975	45	23,619	12/ 8/54
Ferro Spec. Labs, Los Angeles		1	10	70	23,673	3/12/53
Ferro Spec. Labs, Los Angeles		7	...	70	25,223	6/29/53
W. L. Maxson Corp. New York City		153	162	65	25,549	8/27/53
Catalyst Research Corp., Baltimore, Md.		28	...	45	25,910	7/17/53
W. L. Maxson Corp., New York City		130	134	65	27,696	6/10/54
Tennessee Eastman, Kingsport, Tenn.		2,600	...	45	27,733	7/12/54
American Enka Corp., Enka, N. C.		1,130	...	50	27,819	11/10/54
Allied Chem. & Dye, Hopewell, Va.		119	1,062	65	27,878	10/ 6/54
Ethyl Corp., San Bernardino, Calif.		140	...	60	27,979	7/27/54
Monsanto, Nitro, W. Va.		448	450	50	28,014	8/ 4/54
Monsanto, Springfield, Mass.		1,117	1,147	45	28,082	11/ 2/54
Carborundum Corp., Niagara Falls, N. Y.		553	588	55	28,256	11/15/54
Monsanto, St. Louis		155	...	55	28,449	12/21/54
Gulf Res. & Dev., Harmar Twp., Pa.		2,202	...	45	28,537	11/26/54
Allied Chem. & Dye, Buffalo, N. Y.		2,118	...	45	27,926	1/28/55
Monsanto, St. Louis		373	390	45	28,244	1/17/55
Ethyl Corp., Ferndale, Mich.		650	...	40	28,387	1/21/55
Ethyl Corp., Baton Rouge, La.		450	...	40	28,388	1/21/55
Shawinigan Resins, Springfield, Mass.		280	289	45	28,607	1/ 5/55
Catalyst Research Corp., Baltimore, Md.		40	...	45	28,699	1/19/55
DENIED						
U. S. Testing, Philadelphia		1	...	...	11,731	2/15/52
U. S. Testing, Hoboken, N. J.		7	...	...	11,732	4/29/52
Parke, Davis, Detroit, Mich.		549	...	...	12,390	4/ 9/52
Ciba Pharmaceutical, Summit, N. J.		1,012	...	...	12,446	12/ 7/51
Borden Co., Philadelphia		365	...	...	14,161	12/14/51
Amer. Smelt. & Ref., S. Plainfield, N. J.		1,274	...	...	15,717	12/22/52
U. S. Testing, Hoboken, N. J.		8	...	...	16,068	2/28/52
Baker & Co., Newark, N. J.		230	...	...	17,159	12/ 4/52
Hercules Powder, Wilmington, Del.		394	...	...	20,952	9/ 8/52
Monsanto, Springfield, Mass.		1,000	...	...	25,396	7/ 2/53
Air Products, Allentown, Pa.		43	...	...	26,033	8/18/53
Shell Chem., Deer Park, Tex.		456	...	...	28,409	11/23/54
WITHDRAWN						
National Dist. Products, Cincinnati		481	...	...	28,015	...
Union Carbide, Niagara Falls, N. Y.		1,957	...	...	28,090	...
Jefferson Chem., Austin, Tex.		617	...	...	28,238	...
Jefferson Chem., Austin, Tex.		480	...	...	28,239	...
PENDING						
Norwich Pharmacal, Norwich, N.Y.		1,195	...	...	27,903	4/28/54
Hooker Electrochem., Niagara Falls, N. Y.		750	...	...	28,205	7/ 2/54
Monsanto, Texas City, Tex.		570	...	...	28,307	7/30/54
Dow, Midland, Mich.		1,465	...	...	28,617	10/25/54

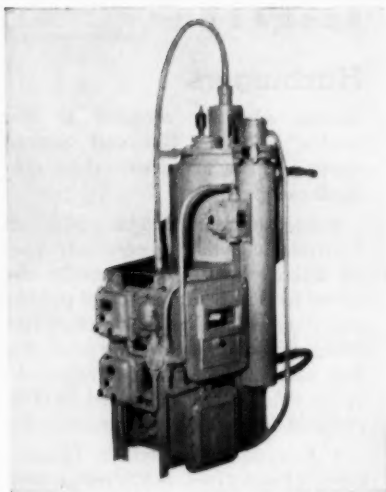


FIGURE 11
One type of pilot plant dispersion unit.



Pouring cool sample of sodium dispersed in high flash point medium illustrates ease of handling. Samples are available for initial investigations.

HOW TO MAKE SODIUM DISPERSIONS

With the development of sodium dispersions, the value of metallic sodium as a reaction tool on a commercial scale has been multiplied many times over. While sodium bricks and molten sodium have been used for years in the manufacture of materials

such as sodium methylate and fatty alcohols, the high reactivity and ease of control inherent in dispersions permits a vast broadening of practical sodium applications.

To test the laboratory or pilot plant value of sodium dispersions in your process is a simple matter requiring little or no investment in equipment. For example, Figure I shows a simple laboratory unit consisting of a creased flask, a special high-speed stirrer, nitrogen purge lines, reflux condenser and addition funnel. Fifteen minutes mixing at 105° C. is generally sufficient to produce good dispersions containing 50% sodium with particles averaging 10 to 20 microns. Subsequent reactions may be carried out in the same equipment, giving high yields under easily controlled conditions.

Figure II shows a 15 gallon pilot plant dispersion unit which handles 20 to 50 pounds of sodium. Modified versions for handling smaller quantities are easily fabricated. The method of preparation and mixing time is quite similar to the laboratory equipment, and the charge consists of brick sodium or molten sodium from a melt tank. Units up to 500 gallon capacity have been put into operation.

Our technical service people

will be glad to work with you on modifications of equipment already available in your laboratory or pilot plant, and will supply complete information on dispersion preparation and use. In addition, we offer a booklet, "Sodium Dispersions", which tells you how to make and use these dispersions in many reactions, such as:

- Claisen Condensations.
- Wurtz type reactions.
- Preparation of sodium alcoholates.
- Purifications.
- Preparation of organo-sodium compounds.
- Metalations.
- Replacement of active hydrogen by sodium.
- Polymerizations.

Metallic sodium is manufactured by National Distillers Chemical Co., at Ashtabula, Ohio, and sold by U. S. Industrial Chemicals Co. (both divisions of National Distillers Products Corp.) 99 Park Avenue, New York 16, N. Y. Branches in all principal cities.

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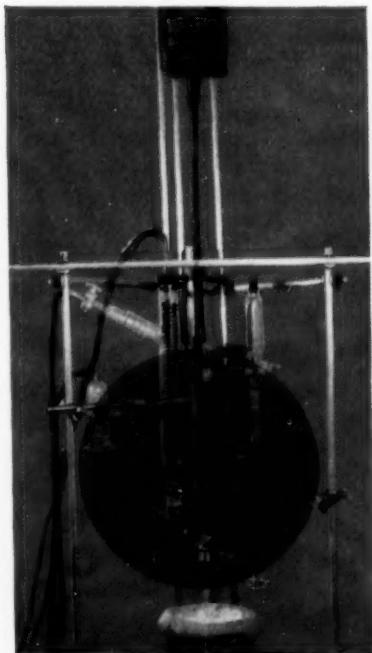


FIGURE I
One type of laboratory dispersion unit.



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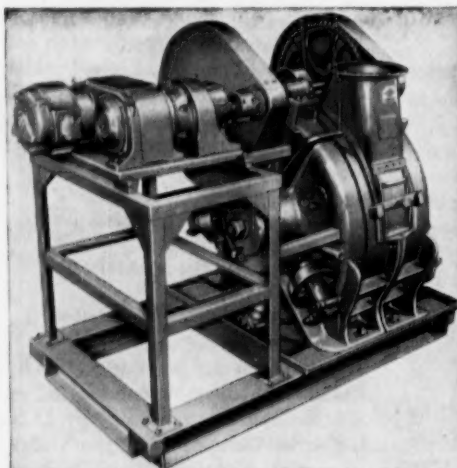
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RESEARCH

Harbingers

Among advances revealed at this week's American Chemical Society meeting in Cincinnati were these synthesis mileposts:

- Unprecedented yields (89%) of 2-pyrrolealdehyde, a potentially useful intermediate, are reportedly obtained by direct formylation of pyrrole with dimethylformamide. Stanford Research Institute staffers, who made the find, also formylated N-methylpyrrole in the same manner, obtained 79-90% yields of N-methyl-2-pyrrolealdehyde.

- According to Lederle Laboratories' (Pearl River, N.Y.) researchers Milton Bullock and John Hand, readily available intermediates can be used to prepare thioctic acid (6,8-dithiooctanoic acid) and closely related compounds that may possess comparable growth-promoting activity (CW, July 25, '53, p. 74). Highest yields result with acetylthio-substituted esters, unsaturated ketoesters (when side reactions are minimized); lower yields with benzylthio derivatives.

- Cyanohydrin nitrates are unique reagents for the nitration of aliphatic amines to nitramines under anhydrous alkaline conditions, according to William Emmons and Jeremiah Freeman of Rohm & Haas Co.'s Redstone Arsenal Division (Huntsville, Ala.). Such nitrates, they aver, are the only known compounds to effect this conversion in satisfactory yields with a variety of amines. Sample nitramine yields (using acetone cyanohydrin nitrate): dimethylnitramine (76%), N-nitromorpholine (81%), and N-nitropiperidine (82%).

- Du Pont's J. C. Sauer, (Chemical Dept., Experimental Station) and J. D. C. Wilson (Film Dept.) report 50-75% yields of monomeric vinyl sulfonates by direct vinylation of sulfonic acid with acetylene. The reaction takes place in ether, is catalyzed with mercuric oxide. Acetylene pressures ranged from 7 to 18 atm. Sauer and Wilson also tried homopolymerization of vinyl methanesulfonate, and copolymerization of the compound with a variety of other vinyl monomers. Their observation: yields, inherent viscosities, and stick temperatures of the copolymers decrease as vinyl methane-sulfonate content is upped.

- Latest result of epoxy studies at USDA's Eastern Regional Research Laboratory (Philadelphia) is the

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olefins	catalyst →	mono or dialkylated hydroquinones
phthalic anhydride	→	quinizarin
sodium chlorate	→	benzoquinone
hydrogen	→	quininol
aliphatic amines	→	n-alkyl p-aminophenols and N, N' bis alkyl p-phenylene- diamines
Mannich condensations	→	bis-dialkyl-aminoethyl- hydroquinones or 2,5-dimethyl hydroquinone
benzoquinone	→	quinhydrone
sulfuric acid	→	hydroquinone-mono- or di-sulfonic acid
halogens	→	halogenated hydroquinones
ethyl acetoacetate	→	4-methyl-6-hydroxy-coumarin
Kolbe carboxylation	→	gentisic acid

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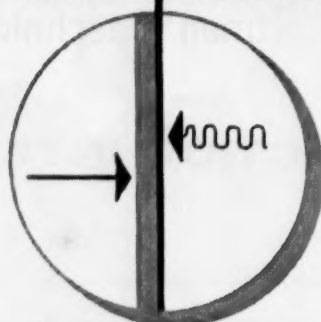
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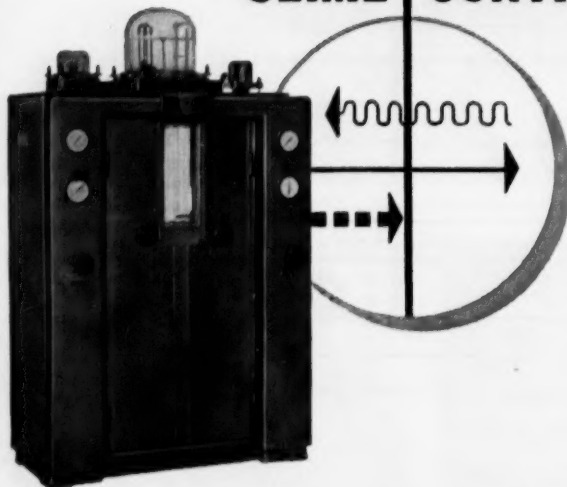
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CD-39

RESEARCH

epoxidation of pure vinyl oleate by perbenzoic and peracetic acids to produce 98.5% pure vinyl 9,10 epoxy-stearate. Commercial vinyl oleate was converted into 90 to 96% pure vinyl epoxystearate. Reported by ERRL's Leonard Silbert, Zelda Jacobs, William Port and Daniel Swern, the epoxy investigation also yielded techniques to homopolymerize and copolymerize (with vinyl chloride) vinyl epoxy-stearate in dispersion, without gelation.

Nicotine Nemesis: According to Louis Nickell, Chas. Pfizer (New York) plant physiologist, antibiotic treatment of tobacco plants can decrease their nicotine content. The firm will reportedly award a research grant to an as-yet-unnamed university to explore this effect.

Wraps Off: Dan River Mills' (Danville, Va.) X-2 crease-resistant finish reportedly is based on acrolein and formaldehyde. According to the firm's assistant research director, Paul Stam, from 3- to 20% of the condensation product is required on fibers in order to get results.

Sedative Tyro: A new type of sleep-inducer, now popping up on druggists' shelves, is claimed to be safer than phenobarbital. Launched by the pharmaceutical division of Geigy Chemical Corp. (New York), the drug has been named Medomin. Chemically, it is cycloheptenylethyl barbituric acid. According to Geigy, the drug counters functional insomnia and anxiety-tension states, can give relief of nervous tension and hypotensive effects in persons with elevated blood pressure. Feature: awakening without "hang-over."

Lab Recorder: To reduce note-taking and report-writing time in the laboratory, Meyer Scientific Supply Co., Inc. (Brooklyn) now offers a low-cost portable tape recorder. Good reproduction of typical laboratory sounds (e.g., bubbling, boiling, animal heart beats) is also claimed for the instrument—a time-saver where precise description or identification is required.

Paint Enzyme: Latex water paints can now be made stable to freezing by enzyme-digested proteins. U.S. Pat. 2,687,384, recently granted to National

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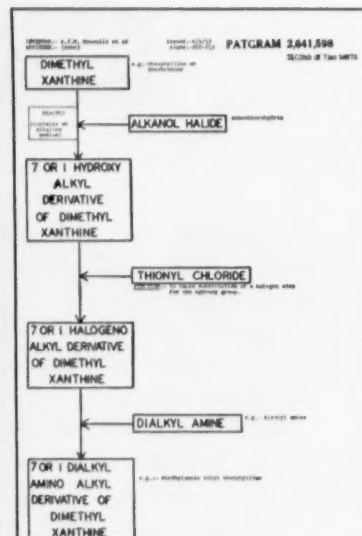
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RESEARCH

Dairy Research Laboratories (Oakdale, N.Y.), states that the addition of milk casein and soya protein that has been acted upon by a proteolytic enzyme will prevent separation of these ingredients at frigid temperatures.

Sanity Drugs: First phase of a study of the effect of reserpine and chlorpromazine on 150 mental patients at Columbus, Ohio, has been completed. Results haven't been disclosed, but an early report from Longview State Hospital (Cincinnati), where 1,100 patients have been treated with the drugs, reveals that 90% responded. Given either in tablets or by injection, the drugs help calm violent patients and, in some cases, are said to permit mentally ill persons to resume normal living.



Quick Look

AIMING for terse, comprehensive coverage of new chemical process and product patents, a new patent digest, "Chemical Patgrams," uses diagrams to sketch a patent to a page. Bold type is used for the major aspects of each patent, small type for details. Edited and published by Fred Philpitt, Washington, D. C., the publication reviews about 100 new patents each week, encompasses metallurgy, petroleum, textiles, pharmaceuticals, etc.

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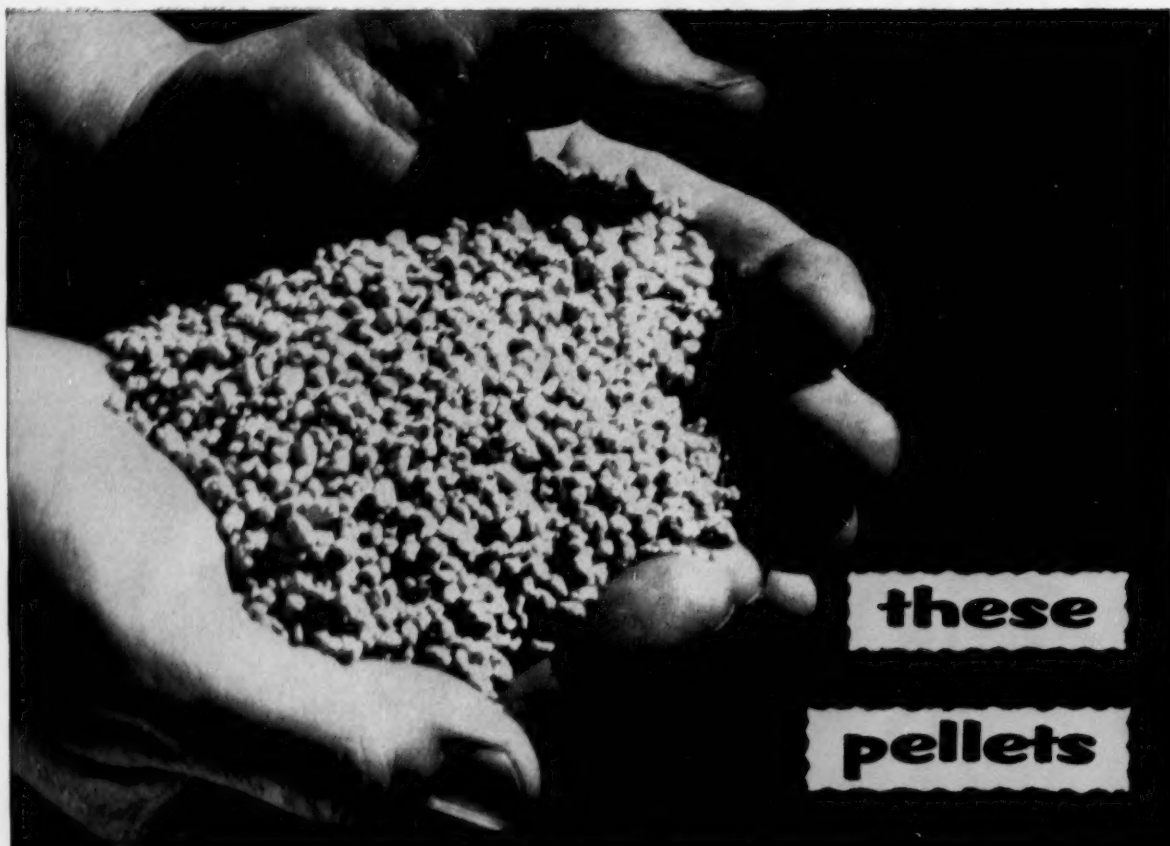
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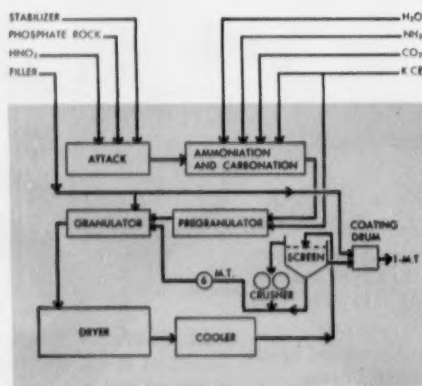
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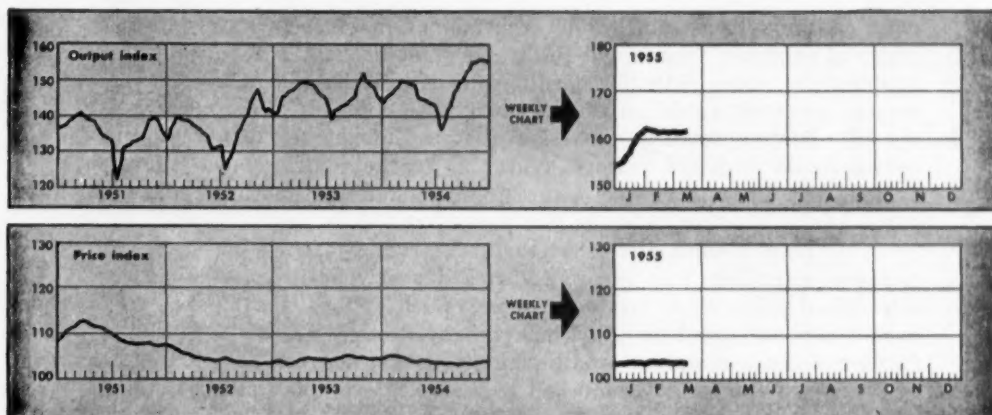
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MARKETS



WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947-49=100)	160.7	162.1	147.9
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.1	103.9	104.2
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	375.9	373.7	280.8

MONTHLY INDICATORS—Foreign Trade (Million Dollars)

	EXPORTS			IMPORTS		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
Chemicals, Total	79.8	86.0	64.2	20.6	20.6	23.0
Coal-Tar Products	6.5	7.5	4.2	3.0	3.9	4.4
Industrial Chemicals	14.7	12.5	9.2	5.1	5.1	4.4

MARKET LETTER

Will Tennessee get a new titanium plant? The answer to that market question is still up in the air. Interested senators, who have been needling the General Services Administration as to when the contract with Du Pont would be concluded (*CW Market Letter*, March 26), were informed late last week that the negotiation deadline date will be delayed again, probably for 30 days.

From Du Pont's official statement: "... extension would allow further exploration necessary to iron out certain aspects. . ."

Trade speculation, on the other hand, centers around a different explanation for the 16 months' dragged-out dickering. The proposed \$40-million Du Pont installation would lift U.S. titanium sponge capacity to 30,000 tons/year. That potential scale—in light of the surprisingly low current consumption rate, particularly by the military—parents the pertinent poser: Is this plant really necessary?

If price reductions can effectively beat titanium's tom-tom, then industrial usage is in for a noteworthy expansion. The marketing hope is behind this week's marked-down sponge tags. Titanium Metals, followed closely by Du Pont, posted a 55¢/lb. reduction to set a new \$3.95/lb. price.

The lower schedules may well tempt hesitant commercial customers. Wider application plus increased production, hint the producers, emphasizes the likelihood of even further price-pressuring.

Some phthalic anhydride users, though, are still in a bind. Sup-

plies continue to be pinched by a combination of factors: rising and insistent demands from alkyd resin and paint outlets; not quite enough naphthalene; some phthalic hoarding and frantic buying induced by the current crimped condition of the market.

Despite fears in the trade that second-quarter manufacturers' quotes would be jolted upward, reasoning to the contrary (*CW Market Letter, Feb. 12*) proved accurate. Contract-signing time has come and gone—phthalic prices, officially, are pegged at 20¢/lb. (c.l.).

There's some disconcertion in the resale market, however. One strapped consumer was reportedly nicked nearly 5¢/lb. more than the established price on a good-size order. Such goings-on compound producers' allocation problems, and makers indicate they will try to block any further phthalic-scalping. Additional quantities—at regular prices—will be diverted to customers compelled to resort to gray-market buying.

Color of the copper market, for users at least, is darker this week. The metal moved up an anticipated 3¢/lb.—to 36¢—carrying along, of course, many chemical derivative tags.

For the second time in less than three months, supply-scrouring consumers face higher copper chemical quotes. Among them: all grades of copper sulfate (up \$1 to \$2/cwt.); carbonate (55%, bags, works), now 30-31¼¢/lb.; hydrate (up 2½¢/lb.); acetate, advanced the full metal rate, 3¢/lb., lists at 43¢, c.l., a penny higher in l.c.l. quantities.

Despite the almost certain tightness in tung oil supplies expected next season (*see p. 92*), Commodity Credit Corp. late last week accepted lower-than-market prices for a whopping 450,000 lbs. of government-held material. Some traders question the reasoning behind the action.

With conditions as they are—the frost-damaged nut crop, higher Argentine quotations—they expected CCC to accept bids on a firmer basis. The latest sales bring the total of such transactions to nearly 800,000 lbs. since the CCC offerings began in mid-February.

There's a fray shaping up over TVA's plan to produce diammonium phosphate (*CW Market Letter, April 2*). Current producers of fertilizer-grade material not only discount circulated reports of their joining the government agency in an educational and demonstration program, but they're also readying a strong fight to keep TVA out of production.

One company has complained to senators and congressmen that if TVA goes into the business, it'll have to drop out. Solons appear right now to be marking time. When they act, it will probably be to try to attach a rider onto the TVA appropriations bill—and that won't come up for committee review before May.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending April 4, 1955

	Change	New Price		Change	New Price
UP					
Copper acetate, bbls., c.l., works	\$.03	\$.43	β-Naphthol, tech., bbls., c.l., works	\$.02	\$.345
Copper metal, electrolytic, divd., Valley basis	.03	.36	Tannic acid, NF, fluffy, bbls., 1,000-lb. lots	.20	1.80
Copper sulfate, CP, gran., bbls., works	.01	.1915			

All prices per pound unless quantity is stated.



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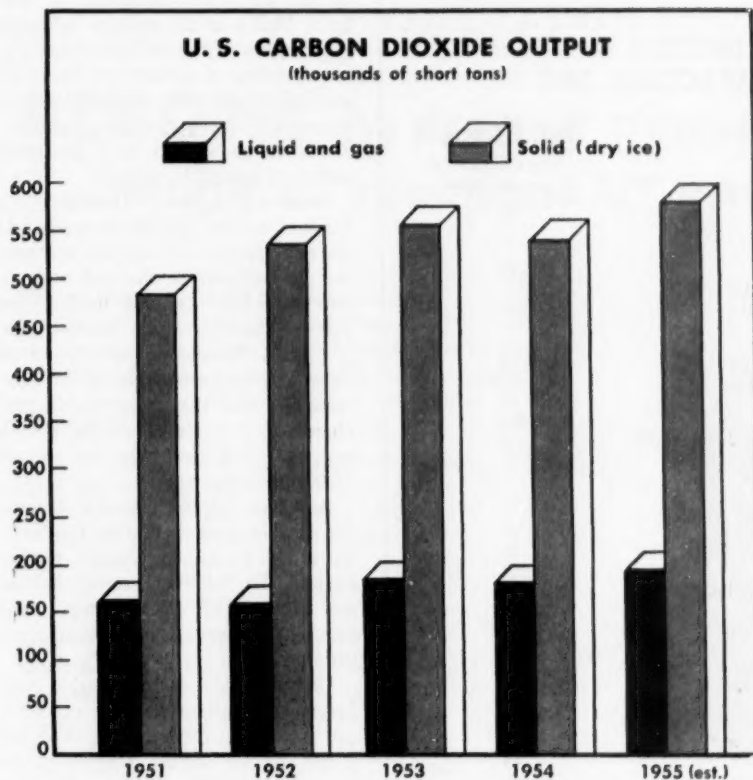
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Carbonic Outlook: Ample

"No one's talking CO₂ shortages any more." That's the word this spring among carbon dioxide marketers. Mounting by-product dioxide from petrochemical plants (see capacity table, p. 90)—especially those turning out anhydrous ammonia—will swell total CO₂ output, by year's end, to 780,000-800,000 short tons.

And the expectation—some 8-10% above last year's production—leans more heavily toward the higher level of the range.

Probably before July the following plants, and there may be others, will be ready to add their capacity to the country's carbon-dioxide potential. The new ones: Allied Chemical's Nitrogen Division at Hopewell, Va., 110 tons/day; Cardox at Memphis, Tenn., 100 tons/day (purchasing from Grace Chemical); Liquid Carbonic at Oakland, Calif., 75 tons/day; Food Machinery & Chemical at Lawrence, Kan., 60 tons/day.

Not new, but expanding to double capacity (70 tons/day) is Liquid Carbonic's Houston installation.

To Market, To Market . . . : By the time '55's predicted output total of dry ice reaches the majority of its consumers, it will have shrunk by about 20%—the average amount lost by sublimation. Hence, minus this quantity, shippers of foods, fruit and vegetable perishables will stack away in trailer trucks and railroad cars between 190,000 and 210,000 tons of the non-wetting ice.

That's 10% ahead of last year's food-and-perishables usage, and about 5% above 1953's roll out of 180,000-200,000 tons.

Even though meat and produce truckers use more dry ice than the railroads, the solid dioxide plays a relatively small part in the refrigeration of railroad shipments.

Despite growing equipment expense, truckers are installing mechanical refrigeration units using fluorinated hydrocarbons (CW, Feb. 26, p. 85). In the summer, however, booster loads of dry ice are put on trucks and railroads—that's when output of solid CO₂ nearly doubles.

The railroads, too, are beginning to install mechanical units. In contrast with the over-the-road trucks, 80-90% of rail line refrigeration is by water ice and salt.

Rail shippers find that a car refrigerated with wet ice and brine alone needs to be re-iced about every third morning; using less salt and supplementing with dry ice, an initial icing may last through a five- or six-day trip. Results: produce gets to its market faster and in better quality, and ice-handling charges are lopped.

But to capture more of the refrigerator car market, some observers opine, dioxide manufacturers will have to shave present dry ice f.o.b. prices of \$70-80/ton by as much as 25%.

Bottlers and dispensers of carbonated beverages are somewhat more steady customers of carbon dioxide than the rail and truck shippers. About 95% of the bottled soft drinks consumed in the U.S. is carbonated—an outlet this year for some 125,000-155,000 tons of CO₂. That's almost 10,000 tons ahead of '54's 115,000-145,000 tons.

About half of this beverage carbon dioxide is sold as bulk liquid or in cylinders; the other half, as dry ice. Many large bottlers now have low-pressure converter receivers that can hold entire 50-lb. blocks of dry ice, or bulk shipments of liquid carbon dioxide. These receivers stimulated wider use of dry ice, opened markets in various applications where cylinder supplies were considered too expensive. Smaller bottlers and soda fountains, of course, take the gas from liquid-CO₂ cylinders.

Bubbling to the Top: Industrial refrigeration is right now the fastest-growing outlet for carbon dioxide—in contrast with the leveling off of food-produce refrigeration, because of increased usage of mechanical refrigeration units, and the steady carbonated beverage market. Among

'55 Carbon Dioxide Use

Refrigeration of foods, perishables	40-45%
Carbonated beverages	20-25%
Industrial refrigeration	15-20%
Chemical raw material	6-10%
Fire extinguishers	5-7%
Inert atmospheres	3-5%

CARBON DIOXIDE PRODUCERS, CAPACITIES, 1955

Source	Producer	Est. Capacity (liquid basis) tons/day
Coal:	Cardox, Cabin Creek, W. Va.	30
Coke, Coke Breeze:		
	Cardox, Monee, Ill.	35
	Pure Carbonic* (Division of Air Reduction Inc.), Chicago, Ill.	200
Fermentation:		
	Commercial Solvents, Agnew, Calif.	12
	Peoria, Ill.	15**
	Hiram Walker, Peoria, Ill.	50
	Publicker Industries, Philadelphia	200
	U. S. Industrial Chemicals, Anaheim, Calif.	9
Limestone:		
	Columbia-Southern Chemical (Division of Pittsburgh Plate Glass) Barberton, O.	60
	Corpus Christi, Tex.	30
	Ideal Dry Ice, Ada, Okla.	25
	Olin Mathieson Chemical, Saltville, Va.	275
	Pure Carbonic, Alabaster, Ala.	17
	Wyandotte Chemicals, Wyandotte, Mich.	230
Natural Gas and/or Oil:		
	Allied Chemical & Dye,† Nitrogen Division, Hopewell, Va.	110
	Brea Chemicals† (subsidiary of Union Oil of Calif.), Brea, Calif.	70
	Browne, Parker, Ft. Worth, Tex.	40
	California Carbonic, Los Angeles	45
	Cardox, Memphis, Tenn.	100
	Lion Oil,† Luling, La.	45
	Liquid Carbonic, Chicago 25 plants operating, one abuilding	1,200
	Pure Carbonic, Berkeley, Calif.	50
	Deepwater, N. J.	100
	Kansas City, Mo.	70
	Niagara Falls, N. Y.	120
	Shell Chemical,† Ventura, Calif.	100
	Spencer Chemical,† Pittsburg, Kan.	75
	Union Oil of California, Santa Maria, Calif.	60
	Witt Ice & Gas, St. Louis	40
Natural Wells:		
	Cal-Dri, Hopland, Calif.	30
	Carbonic Chemical, Mosquero, N.M.	75
	Carbon Dioxide & Chemical, Wellington, Utah	60
	Gas-Ice, Klickitat, Wash.	30
Phosphates:		
	Food Machinery & Chemical, Lawrence, Kan.	60

* Coke breeze and oil.

** Min. capacity; operation depends on raw materials.

† Anhydrous ammonia producer.

the industrial uses for CO₂:

- Removing flash or rind from molded rubber parts. (The parts are frozen with dry ice or liquid carbon dioxide in a barrel and tumbled until the flash is broken off.)

- Testing of aircraft instruments and parts in high-altitude-simulated low temperatures. (Low temperatures are achieved with less capital expenditure by use of the dioxide than with

a mechanical freezing unit.) Current keen interest in polar-cap flights is expected to spur testing laboratory orders for dry ice or liquid CO₂.

A steady stream of dioxide cylinders also goes out to laboratories of all kinds across the nation for use in other than low-temperature tests.

As a chemical raw material carbon dioxide has a steadily diversifying array of outlets. Note these: manu-

facture of basic carbonate of lead from lead acetate; sodium salicylate (for aspirin) from sodium phenoxide; precipitation of ammonium bicarbonate (used in bakeries and plastic manufacture) and potassium carbonate (used in soaps and as a preferred source of potash in glass).

Captive Chemical: The large quantities of carbon dioxide consumed in the manufacture of soda ash and urea are not included in the end use pattern (*see box*) or year totals, since this is almost entirely captive consumption. Normally, no reports of these amounts are made to the government. On the other hand, purchases of CO₂ for reportable chemical uses will probably run above 40,000 tons this year.

As a gas, rather than as a reagent, the dioxide is competing for the inert-gas-shielded arc welding market against the relatively costly helium and argon. (CO₂ boosters report gas savings of more than 65% in torch use.)

On every side, carbon dioxide marketers are galloping in a catch-as-catch-can race for markets. And the threat of an almost certain petrochemical dioxide surfeit over the next few years is the goad on the flanks.

The Bloom Is Gone

How barium citrate rescued the latex paint industry from a near-crippling bugaboo and built itself a sure-fire market at the same time was a well-guarded secret for some years (CW, June 26, '54, p. 95). Sherwin-Williams (Cleveland, O.) this week took the wraps off its hush-hush development that whipped the problem of latex paint "blooming."

The latex makers' erstwhile dilemma: application of the latex coat, under certain humid conditions and within a certain temperature range, caused a crystalline material to form within a few days on the surface of the finish. The hazy, crystalline material—the "bloom"—could be washed off, but would reappear in a few days. Producers, in near despair, were ready to give up on latex paints. It just wasn't feasible to tell users not to paint in humid weather.

The culprit vexing the latex makers turned out to be one of the catalysts used in making the latex base paint. A persulfate, it breaks down in polymerization, reacts with surface-active

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FOR SALES-LAGGING latex paints, a barium citrate assist.

agents to form monohydrated sodium sulfate, which appears as crystals on the paint surface.

Tying Down a Market: The solution was to tie down the sulfate so it can't bloom. Barium citrate licked the problem economically.*

Sherwin-Williams was sold on the use of barium citrate, but had to go into production of the salt itself, now makes all the citrate needed captively and as much again is left over to market.

The product, although not drug-pure, is good enough to make any latex paint usable.

Barium citrate output figures, of course, are not available, but at the moment production is probably low-key. Shoring this belief: SW's statement that it isn't noticeably affecting the supply of citric acid, which is a major raw material.

At any rate, Sherwin-Williams hasn't been bothered with blooming of interior latex paint since it began to include the citrate three years ago. And with sales of latex paints reaching beyond the 40 million gallons/year level, the potential market for barium citrate could also be headed for a steep rise.

* Use of barium citrate in latex paints is controlled by a patent held by Firestone Tire & Rubber. Except for Sherwin-Williams, others must be licensed by Firestone.

Double Freeze Nips Tung

It's bigger than both of them. That may well be an apt description of the government's tung oil holdings as compared with the likely amounts to be (1) imported and (2) domestically produced this year.

And a depressing possibility facing consumers (chiefly paint and varnish makers) is this: the Commodity Credit Corp. stocks—some 38 million lbs.—may actually not be hefty enough to fill the expected void between supply and demand. Result: it's almost a sure-bet that less tung oil will shoot prices higher next season.

Weather Freeze: Just how severely the Southern tung nut crop was crimped by the freeze a couple of weeks ago has yet to be officially evaluated by the Dept. of Agriculture. Indications are, though, that the damage was considerable. Some trade followers estimate that the entire crop was virtually wiped out. In Florida, for example, the loss is variously pegged at between 85% and 95%.

The government damage survey, however, may tend to brighten the pessimistic first-look reports. At any rate, this is the second straight year in which tung oil supplies have been frost-nipped. Last year's cold waves in the Southland knocked out more than half the nut crop, squeezed oil output to a mere 12-13 million lbs.—a big drop from '53's near-42 million.

But while domestic tung oil dipped badly, imports during calendar '54 soared to a new five-year record. Some 36.5 million lbs. poured into the U.S., most of it—about 87%—from Argentina. Approximately 4 million lbs. of the drying oil bore a Paraguayan label.

As is pointed out in USDA's latest (out last week) report, "The Fats and Oils Situation," the U.S., historically, has relied upon imports to meet most domestic requirements. After World War II, Chinese tung oil flooded in at a near-100-million-lbs./year rate, and South American imports rose sharply.

Demand from paints, varnishes and, to a lesser extent, floor covering, oilcloth, printing ink, and other drying oil outlets, was strong enough to absorb the influx. The fact that tung oil prices were down substantially from prewar levels, in relation to tags on other drying oils, probably helped

to stimulate use among paint people in particular.

Washington Freeze: Imposition of an import freeze on Chinese material late in '50 caused domestic consumption to skitter badly, and settle down to an annual rate of about 50 million lbs. in each of the last three years. Prices, on the other hand, ran up the ladder (from '49's average 22.4¢/lb. to '52's slightly higher than 40¢) and down again, to today's 22-23¢-range.

The drop in use, too, reflects the keen competition of substitution of other oils and synthetic materials brought about by tung's supply instability, and relatively high and vacillating prices. Added tung woe: technological improvements, which have enabled competing products (e.g., modified oils, maleic anhydride, alkyd and polymer resins, etc.) to impart equal or superior properties to a given coating at equal or less cost.

In recent years, a new factor—government interest—has been added to the supply-price-competition conditions that affect the tung oil market. As a price support operation, CCC acquired nearly 85% of the '53 tung crop, and in the same year, USDA action was initiated to limit imports because of possible interference with the program.

The Tariff Commission turned down the request to limit foreign oil receipts during '53-54, but have okayed a so-called "gentlemen's agreement," in effect for the current '54-55 crop year, between the U.S. and the Argentine and Paraguayan governments.

Something less than 24 million lbs. is slated to come from the South American countries, in addition to about a million pounds from other sources.

Concern in the trade now is whether or not this amount, plus the frost-unscathed trickle from the South's tung belt and CCC stocks, will be enough to cover even the comparatively low current demand.

There's no official indication yet of what action will be taken, but sentiment is building up in the market for a relaxation of the import-limiting agreement.

The alternative could be a tight supply situation next season, and with it, re-escalation of tung oil prices.

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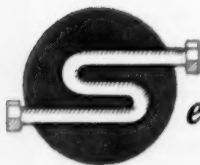
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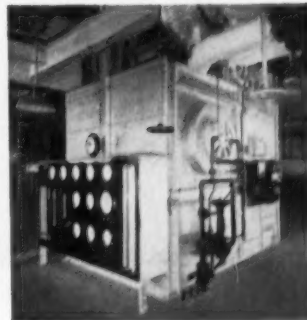
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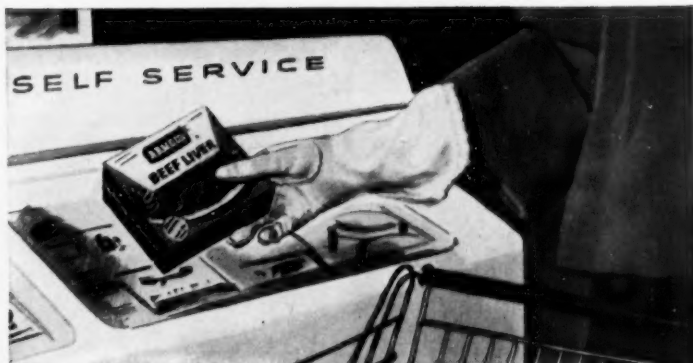
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Roundup of new chemicals

Several new chemicals have been offered in this column recently. You may have missed some of these products. To bring you up-to-date, a summary follows. See numbered boxes in coupon for information and samples.

I *Armeen® 2S and Armeen 2T*—new (unsaturated) secondary amines, of particular interest in corrosion inhibition problems in oil systems.

II *Arquad® 2T*—a quaternary ammonium salt of Armeen 2T, useful in corrosion problems and as a cationic emulsifier and anti-static agent.

III *Armeen DMS, DM16 and Armeen DM18*—new tertiary amines (dimethyl soya, dimethyl palmityl and dimethyl stearyl) for evaluation in the fields of sanitation, textile chemicals, quaternizing and corrosion inhibition.

IV *N-coco morpholine and N-tallow morpholine*—tertiary amines, useful in general emulsification problems, corrosion inhibition and the sanitation fields.

V *Laurone, Stearone and Oleone*—fatty ketones, for use in petroleum waxes, and anti-block compounds.

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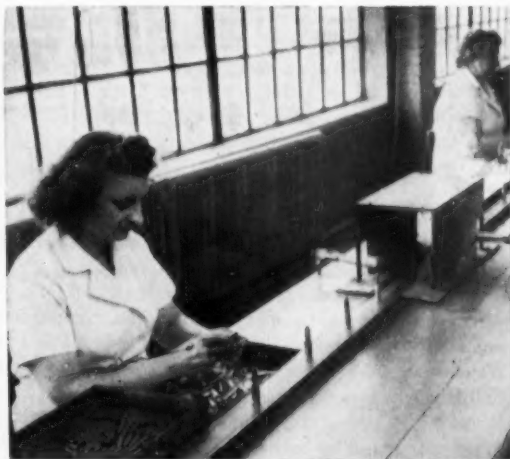
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SPECIALTIES



CHRIS GRUBB

MAKING MAKE-UP: Hardened in molds with dry ice, smoothed by flame, 100 million lipsticks a year are dropped into women's handbags. Manufacturers sense a trend, and an increasing share of . . .

Lipsticks Stick with 'Indelibles'

Lipstick's behind cosmeticians' latest frowns of concentration. On their minds: lipstick formulations that don't "kiss and tell."

"Nonsmear, indelible types" (although the FTC in 1953 stopped lipstick sellers' use of terms "indelible" and "nonsmear") are big in today's \$40-45-million U.S. lip make-up market, a market that rose 50% (from \$26 million to \$40 million) between 1947 and 1953. How important the indelibles are is dramatized by the growth of Hazel Bishop, Inc. (New York), founded on the new emphasis. After failing twice, the company started again in 1950 with no plant, little capital and a mail-order ad (25¢ for sample stick). An avalanche of replies—250,000—led to more ads, big TV (biggest: color "spectaculars") and in 1954, \$12-million sales (from \$714,830 in 1950). It now has four plants;* this week is weighing Cuba against Puerto Rico as a plant site for the growing Caribbean market.

Coty Products Corp., latest convert, is plunging in with Coty "24," a hush-hush stain intended to stay with the user day and night. Hours beyond the others in clinging power (a competitor says it should be called Coty "48") the "24" marathon may show how much permanence women want in their lip-

sticks, what they will sacrifice for it. Coty admits quite frankly that "24" 's pluses—it goes on "glidily," is nonstaining, leaves color on the lips even after washing one's face—are counterbalanced by such drawbacks as a greasy feel, lip-drying effects, lack of covering power, need for patient drying. (Solvent in the formula, incidentally, is all glycols—no oils.)

Solvent Assist: Excepting Coty's "24," most high-stains are basically the same product as the "creamies" made before—and still made by many. Principal differences: the solvent used and the amount of dye. Castor oil is the basic solvent in most sticks, the only solvent in creamies. But the high-stains mix in about 5 parts of polyethylene glycol to 60 of castor oil, couple the two with a mutual solvent such as monpropylene glycol esters (5 parts). Also they use more eosin (bromo acid) dyes.

Dyes are the same† as have been used by most makers since the success of L. W. Luft Co.'s Tangee, introduced

in 1923. A pale-orange stick (D&C Red No. 21), it stained the keratin, changed to a pale pink on the lips, satisfied that day's hesitant make-up taste. Somewhat more vivid eosins are now used with No. 21: brighter and bluer D&C Red No. 27 stains more quickly, is used more by modern "indelibles." Also used: D&C Orange No. 5. Although, as with any dye, cases of eosin irritation have been reported, this has not been a serious problem. Current preferences for intense colors are satisfied by adding lakes, which are not of themselves long-lasting. Allowing these to set, blotting to remove excess (practices recommended by all makers but Coty, which only asks one or the other—not both) holds down the tendency to smear and transfer. With wear, most of the lakes come off, fading the lips close to the basic eosin color—shades too pale to suit most users. So women still dig often into handbags for their lipstick.

A disadvantage, so far inseparable from high-stains, is their drying effect: the polyethylene glycol draws moisture from the lips. As the molecular weight of the glycol increases, the hygroscopic effect decreases—but so does the staining power of the solution.

Based on a Compromise: The bases of "indelibles" don't vary, except for the solvent, from those of creamies. But although the materials used in all

†Most cosmetic colors are sold by Kohnstamm & Co.; Whittaker, Clark and Daniels, Inc.; and Ansbacher-Siegle Corp., all of New York. Colors approved for use in drugs and cosmetics must be from batches certified by the Food & Drug Administration. If certified dyes are not used, or if FDA can prove that other ingredients are dangerous to health, the product can be seized and the manufacturer brought to court. In practice "many, but not a majority" of cosmetic manufacturers informally clear their products before marketing them. Though far from becoming laws, two bills have been introduced in Congress requiring prior clearance of cosmetics.

*Paramus, N.J.; Trenton, N.J.; Chicago; Los Angeles.

lipstick bases are generally the same, proportions vary from manufacturer to manufacturer as they attempt to find a better compromise of conflicting aims (example: the stick should have a low enough melting point to melt on contact with lips and spread smoothly, but it should be high enough to keep in hot weather).

Typically, various formulas attempt to balance the waxes to utilize the toughness of ozokerite, the high melting point of carnauba, the hardness and thinness of candelilla and the resiliency of beeswax. Lanolin provides emollient properties and "drag."

Tricky to make—composed of a non-miscible mixture, lipsticks are subject to breaking, cracking and crumbling—they are turned out by only a few companies. Most of them (Hazel Bishop and Luft are two of the few that make their own) are made by Kolmar Labs (Milwaukee), which provides private rooms for customers to prepare "secret" formulas.

Words of Mouth: It is significant that Hazel Bishop, initiator of the high-stain trend, was started and is run by advertising men. Raymond Spector, chairman of the board, still heads the advertising agency he had before he caught the twice-loser, made it one of the two largest lipstick brands (with Revlon) in the country.

Coty's "Wake Up Beautiful" promotion is all stay-appeal, but others have tended in their advertising to blend indelibility with traditional pitches. One reason: FTC regulations.

Color is still a big lipstick talking point. Toni's (Gillette Co., Chicago) Viv, although a child of the high-stain age, stresses "vivid" colors, talks prodigiously about "high-chroma." Revlon continues the technique that has kept it at or near the top since the beginning of World War II (when it had foresightedly bought a big proportion of available metal cases): introducing a romantically named shade ("Fire and Ice") every two or three months. Others believe this creates store inventory problems (Revlon now has 33 shades), makes it difficult for customers to ask for particular shades. They conduct consumer research and issue 6 to 12 most popular shades.

One change in distribution—the shift away from franchised outlets—has gained ground since the introduction of indelibles. Although some, like Coty, are still sold only to department

and drug stores, newcomers tend to make themselves available to all retailers, can be bought in syndicate (5¢ & 10¢) stores, supermarkets.

Forty Million Frenchmen . . . : Reliable figures aren't available, but many, including Coty and the French Commercial Council, believe the largest selling lipstick in the world is the French superhigh-stain *Rouge Baiser*. It certainly has a hold on the European market, where women would rather apply petrolatum to dry lips at night than do without the stick's long-lasting properties. In its early days, *Baiser* was a better stainer than today, used an emulsion of wax, oils and water with water-soluble dyes (they stain skin better). On the lips the water evaporated, leaving a wax-protected color that stayed and stayed.

Unfortunately, the water also evaporated from the stick on dealers' shelves. Because of this, *Rouge Baiser* substituted glycerine and glycols for the water, giving it a formula much like the new Coty "24."

It is estimated that 93% of American women now use lipstick, most of them all day. But this does not mean that the market will grow only with the population. Lipsticks are seldom used up; they are lost, accumulated on the dressing table, or discarded in favor of a new color or type. It's a highly competitive business where advertising copywriters are always looking and listening for the newer approach, the better gimmick. The impulse that sells another stick is now often likely to be triggered by mention of high-stain color.



PITCH TO DEALERS: When drivers buy additives, they buy more oil—coveralls approach convinces them.

Co-Products Under the Hood

Maybe it isn't axiomatic, but it's generally borne out: the auto specialties maker that's big in "external" products like polishes is seldom a major factor in engine specialties. Mac's Supergloss Co. (Los Angeles), however, seems to be out to buck the system. Founded as a polishmaker, Mac's lately introduced fuel and oil additives—and figures that's where its growth area lies. Last week, Mac's started distribution of its additives in Ohio, the 21st state in its gradually expanding selling program. The aim, says President Bob

MacIsaac, is a steady advance on the nation's market (which he figures is \$120 million/year for these products) until his firm has secured at least 10% of it. He hopes to reach this goal by the end of '56. (In '54, gross on the additives was about \$1 million retail—about \$288,000 in sales for Mac's itself.)

Underhood Trio: Three new products—MS-Plus Crankcase Additive, MS-Plus Motor Tune-up and Carburetor Cleaner, and MS-Plus Fuel Additive—are featured in this latest ser-

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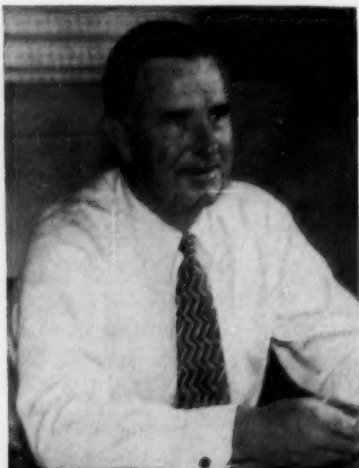
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MacISAAC: As a partner for polishes, fuel and oil additives.

ies of items. They give Mac's a total of 18 products.*

The MS series is produced for Mac's by Bray Chemical Co. (Los Angeles), one of the nation's larger makers of petroleum sulfonates. They are based on products Bray had originally developed for the military, and meet federal specifications (the crankcase additive under MIL-O-2104 and U.S. Army Spec. 2-2126; the fuel additive under Method of Spec. USA 2-126).

It has undoubtedly helped to have a combined reputation—his own firm's and Bray's—behind the products, MacIsaac admits. Currently two big West Coast oil companies sell the additives, and Mac's is indirectly selling three other major petroleum companies—despite the refiner's caustic comment that many additives in the past were just "snake oil and mouse milk."

Selling on Selling: Reputations for offering quality products have limited selling powers, however, particularly in getting dealers to push vigorously the products its supplier recommends. As a result, Mac's has moved fairly slow in introducing its products—slower than anticipated.

One major problem has been in overcoming the reluctance of filling station men to sell products that imply their oils and gasolines are less than perfect. After all, when you claim, for example, that the Tune-up com-

pound "cleans the engine, reduces both friction and corrosion wear, frees rings and valves, neutralizes acids, reduces motor noise, etc.," you do suggest the fuel and oil have had certain shortcomings.

Bob MacIsaac counters these arguments by showing that the Tune-ups require a tank full of gas, and that the oil additive promotes greater driver interest in maintaining clean oil (he presents figures to prove oil sales go up in stations pushing his additive).

And most oil companies admit that a good additive* can improve grades of generally offered oil—upgrade HD oil to S-1 class, for example.

Dealer Clinic: To service station dealers who seem particularly slow in selling MS products, MacIsaac sends a representative to put on a garage coat and demonstrate their use to a few customers (*see cut*). It's called the clinic treatment, and it's generally enough to convince a dealer that the products are worth a little effort. Mac's has a staff of 19 now, making the regular sales calls in addition to giving the demonstration sessions.

So far, Mac's has limited advertising of its products, is sticking to more direct selling methods. To some extent, Mac's concentrates on dealers shown to be big in tires, batteries, and accessories (TBA). Some 20% of the dealers sell 80% of the TBA.

But MacIsaac wants more than the "big 20%." He figures he should have 70% of available outlets in his areas to insure his share of the total market. With that distribution, he's got his eye on a \$12-million retail sales of his new additives—\$4 millions' worth of business to him. And that's more than twice his current volume.

Homestyle Specialties: Some of the new products designed for use around the home:

- **Trak**, a mothproofing compound developed by Gulf Oil Corp. Offered in a 12-oz. wet-spray aerosol container, it contains Rohm & Haas' insecticide, Perthane. Gulf guarantees one full year of moth protection.

- **Ready-to-Use Luminall** is the newest interior finish by Luminall

*Among the leading competitive items for MS-Plus Crankcase Additive are Alemite's (div. Stewart-Warner Corp., Chicago) CD-2; Bardahl Mfg. Corp.'s (Seattle) Bardahl; Texaco's Motor Oil Detergent Concentrate; Wynn Oil Co.'s (Azusa, Calif.) Wynn Oil.

Paints (division of National Chemical and Mfg. Co., Chicago). A washable coating, of latex and alkyd, it is said to require no mixing, and has a built-in primer-sealer and undercoat. The new paint can be applied to virtually any type of interior surface, comes in 12 colors.

- General Electric is selling its silicones for treating suede leather garments to make them water repellent. The treatment, which resists dry cleaning, is also claimed to boost resistance to abrasion, wrinkles, shrinkage and tearing. The treated sueded are sold in a variety of colors.

- **Stop Scratching:** Glass, porcelain and china scratches are the target of Dow Corning's new silicone treatment.



WIDE WORLD

Long-Handled Aerosol

WEEDKILLER in an aerosol container is a new product of Bridgeport Brass Co. Novel and useful is the long handle on the can, which permits user, if he so wishes, to spray the chemical directly on a bothersome plant without bending over.

Herbicide in the aerosol is 2,4-D—it will kill dandelion, plantain, poison ivy, dock, and other broadleaf plants. Container makes 600 applications.

*Now, top sellers are a pair of auto polishes Mac's It Kit, Mac's Speed Glaze; No. 13 (biggest seller, a sulfonate rust inhibitor for radiators); and a stop-leak compound.

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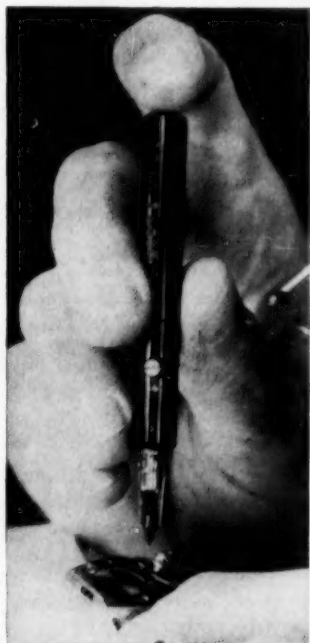
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SPECIALTIES

Called F-4141, said to require little or no cure, the invisible, non-oily film imparts lubricity and scratch resistance. Testing and evaluation aren't complete yet, but indications are that the film is insoluble and won't contaminate foods. It is commercially available at \$1.50/lb.

Underground Pest Control: Shell Chemical Corp. has a new soil fumigant, Nemagon, available for limited commercial use. Still being produced in pilot lot quantities, it will be in plentiful supply by 1956.

Chemically 1,2-dibromo, 3-chloropropane, it is suggested for a wide



WIDE WORLD

Precision Lube

WATCH OIL, at about \$7,000 a gallon, is added to a new Elgin watch. The lube specialty, result of about 16 years work at Mellon Institute, is made by Elgin for its own use, and sold to watchmakers for \$1/cc.

Patent-applied-for, and described vaguely as a "petrosolution," its price stems from development cost, and limited manufacture—only a few gallons a year are made in special lab-glass equipment.



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variety of crops—cotton, grapes, and citrus, peach and walnut trees. Application calls for five-ten gallons per acre.

Industrial Specials: Among the new specialties slated for industrial application:

- Slipicone Spray, the Dow Corning silicone release agent, now packaged in an aerosol container. The 12-oz. can sells for \$2, is suggested for use on heat sealing equipment.

- A stronger (50% increase in strength) form of the liquid phenolic resin, Corfoam, has been developed by Rezolin, Inc. (Los Angeles). The

phenolic, a foaming material used for structural core application, has been coded Corfoam 114.

Dry-Shod Youngsters

Following the introduction a few weeks ago of Sylflex silicone treatment for waterproofing sport and work shoes, Dow Corning Corp. and Virginia Shoe Co. (Fredericksburg, Va.) last week showed off the first Sylflex-treated children's shoes.

The advantages of the silicone treatment for leather are typical of those for silicone-treated fabrics: the leather retains its porosity (it "breathes"), the

treatment is permanent and imparts no stiffness, water is held back.

In the process that Dow Corning worked out, the leather is impregnated with silicone during tanning. The skin is dipped in silicone, then passed through rollers, which force the chemical into the leather fibers. So far, only shoes in conventional brown are offered. But Dow Corning plans to provide Sylflex for leather in other colors soon—red will likely be the first color.

The Sylflex treatment does increase shoe cost. Estimates are that the user will pay about 50¢ to \$1.50 for shoes given water repellency with the silicones.

CHEMICAL WEEK • ADVERTISERS INDEX

ALLOY FABRICATORS DIV., CONTINENTAL COPPER & STEEL INDUSTRIES, INC. 103
Agency—Hiram Ashby Adv., Inc.
ALUMINIUM LTD. SALES, INC. 73
Agency—J. Walter Thompson Co.
AMERICAN CYANAMID CO. INDUSTRIAL CHEMICALS DIV. 52-53
Agency—Hazard Adv. Co.
AMERICAN FLANGE & MANUFACTURING CO., INC. 63
Agency—Freiwald & Coleman, Adv.
AMERICAN MINERAL SPIRITS CO. 34
Agency—Leo Burnett Co., Inc.
AMERICAN POTASH & CHEMICAL CORP. 56
Agency—The McCarty Co.
ANTARA CHEMICALS DIV., GENERAL ANILINE & FILM CORP. 39
Agency—The House of J. Hayden Twist
ARMOUR & CO. 94-95
Agency—Foote, Cone & Belding, Inc.
BAKER & ADAMSON PRODUCTS GENERAL CHEMICAL DIV., ALLIED CHEMICAL & DYE CORP. 3rd Cover
Agency—Atherton & Currier, Inc.
BLOCKSON CHEMICAL CO. 57
Agency—William Balsam Adv.
BUTLER MANUFACTURING CO. 78
Agency—Aubrey, Finlay, Marley, Hodgson, Inc.
CARBIDE & CARBON CHEMICALS CO., A DIV. OF UNION CARBIDE & CARBON CORP. 59
Agency—J. M. Mathes, Inc.
CELANESE CORP. OF AMERICA 33
Agency—Ellington & Co., Inc.
CHEMICAL CONSTRUCTION CORP. 61
Agency—Michael Cather, Inc.
CHEMICAL & INDUSTRIAL CORP. 84
Agency—Strauchen & McKim Adv.
CHEMICAL MANUFACTURING CO. 76
Agency—Sterling Adv. Agency
CHEMICAL SOLVENTS CO., INC., THE C. P. 82
COLUMBIA-SOUTHERN CHEMICAL CORP. 21
Agency—Ketchum, MacLeod & Grove, Inc.
COMMERCIAL SOLVENTS CORP. 41
Agency—Fuller & Smith & Ross, Inc.
COSDEN PETROLEUM CORP. 45
Agency—Craig & Webster Adv.
DAVENPORT MACHINE & FOUNDRY CO. 78
Agency—Hawden Bros., Inc.
DAY CO., INC., THE J. H. 66
Agency—Strauchen & McKim Adv.
DISTILLATION PRODUCTS INDUSTRIES DIV. OF EASTERN KODAK CO. 69
Agency—Charles L. Humrill & Co.
DORR-OLIVER, INC. 36
Agency—Sutherland-Abbott Adv.
DU PONT DE NEMOURS & CO., INC., E. I. ELECTROCHEMICALS DEPT. 91
Agency—Batten, Barton, Durstine & Osborn, Inc.
DU PONT DE NEMOURS & CO., INC., E. I. ORGANIC CHEMICALS DEPT. 4-5
Agency—Batten, Barton, Durstine & Osborn, Inc.
DU PONT DE NEMOURS & CO., INC., E. I. POLYCHEMICALS DEPT. 29
Agency—Batten, Barton, Durstine & Osborn, Inc.
EASTMAN CHEMICAL PRODUCTS, INC. 75
Agency—Kenyon & Eckhardt, Inc.
ENJAY CO., INC. 40
Agency—McCann-Erickson, Inc.

ETHYL CORP. 15
Agency—H. B. Humphrey, Alley & Richards, Inc.
FEDERATED METALS DIV. OF AMERICAN SMELTING & REFINING CO. 48
Agency—John Mather Lupton Co.
FISHER CHEMICAL CO., INC. 8
Agency—G. M. Basford Co.
FOOD MACHINERY & CHEMICAL CORP. CHEMICAL DIV. 96
Agency—James J. McMahon, Inc.
FOSTER WHEELER CORP. 93
Agency—Manteller, Rickard, Gebhardt & Reed, Inc.
GENERAL AMERICAN TRANSPORTATION CORP. WIGGINS GASHOLDER DIV. 35
Agency—Watts & Geller, Inc.
GENERAL ELECTRIC CO. 9-12
Agency—G. M. Basford Co.
GIRDLER CO., THE 26
Agency—The Griswold-Eshleman Co.*
GLYCERINE PRODUCERS, INC. 81
Agency—G. M. Basford, Inc.
GREAT LAKES CARBON CORP. 2
Agency—Davis, Parsons & Strohmeler Adv.
HALL CO., THE C. P. 60
Agency—Crittenden & Pezer Assoc.
HARCHEN DIV., WALLACE TIERNAN INC. 72
Agency—Branstater Assoc., Inc.
HERCULES POWDER CO. 99
Agency—Fuller & Smith & Ross, Inc.
JEFFERSON CHEMICAL CO. 67
Agency—Hazard Adv. Co.
KELLOGG CO., THE M. W. 37
Agency—Ellington & Co., Inc.
KOPPERS CO. 44
Agency—Batten, Barton, Durstine & Osborn, Inc.
LUCIDOL DIV., WALLACE & TIERNAN INC. 103
Agency—Landschaft & Barber, Inc.
NITROGEN DIV., ALLIED CHEMICAL & DYE CORP. 71
Agency—Atherton & Currier, Inc.
OLIN MATHIESON CHEMICAL CORP. 2nd Cover
Agency—Dorrie, Kitchen & McCormack, Inc.
PACIFIC COAST BORAX CO. 82
Agency—Howard M. Irwin & Assoc.
PENNSYLVANIA INDUSTRIAL CHEMICAL CORP. 83
Agency—Walker & Downing Adv.
PERMUTIT CO., THE 43
Agency—Cunningham & Walsh, Inc.
PETRO CHEM. DEVELOPMENT CO. 55
Agency—Sam J. Gallay, Adv.
PRITCHARD & CO., J. F. 87
Agency—Carter Adv. Agency, Inc.
PROCON INC. 7
Agency—Manteller, Rickard, Gebhardt & Reed, Inc.
REFINED PRODUCTS CORP. 16
Agency—James Civile Adv.
REILLY TAR & CHEMICAL CORP. 75
Agency—J. Hayden Twist Adv.
RELIANCE ELECTRIC & ENGINEERING CO. 1
Agency—Wellman, Buschman & Hines, Inc.
SOLVENTS & CHEMICALS GROUP 101
Agency—Watts & Geller, Inc.
STALEY MFG. CO., A. E. 42
Agency—Ruthrauff & Ryan, Inc.
TENNESSEE CORP. 64
Agency—Crawford & Porter, Inc.

APRIL 9, 1955

TRUBEK LABORATORIES, INC., THE 51
Agency—Ray Ellis Adv.
UNION CARBIDE & CARBON CORP., CARBIDE & CARBON CHEMICALS CO. 59
Agency—J. M. Mathes, Inc.
U.S. INDUSTRIAL CHEMICALS CO. 77
Agency—G. M. Basford Co.
VANDERBILT CO., R. T. 54
Agency—P8 Advertising, Inc.
WALLACE & TIERNAN, INC. 80
Agency—Branstater Assoc., Inc.
WEST END CHEMICAL CO. 88
Agency—Norton M. Jacobs, Adv.
WESTINGHOUSE ELECTRIC CORP. 22-23
Agency—Fuller & Smith & Ross, Inc.
WEST VIRGINIA PULP & PAPER CO. 74
Agency—Sherling Adv. Agency
WITCO CHEMICAL CO. 4th Cover
Agency—Hazard Adv. Co.
WYANDOTTE CHEMICALS CORP. 80-81
Agency—Brooke, Smith, French & Durfance, Inc.

tracers SECTION (Classified Advertising)

H. B. Hilby, Mgr.

CHEMICALS: Offered/Wanted 102
EMPLOYMENT 102
EQUIPMENT: Used/Surplus New
For Sale 102
Wanted 102
MANAGEMENT SERVICES 102
SPECIAL SERVICES 102

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Phosphomolybdic
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Phosphorous
Phosphotungstic
Phthalic, Anhydride
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Pyrogallie
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